Arab American University
Faculty of Graduate Studies

The Relationship between Sensory Processing and Participation among Palestinian Preschool Children.

By
Dania Issam Ahmed Odeh
Supervisor
Dr. Dua'a Alwawi
Co- Supervisor
Dr. Hisham Arabalkabyeh

This thesis was submitted in partial fulfillment of the requirements for the Master`s degree in Occupational Therapy
July / 2024

Thesis Approval

The Relationship between Sensory Processing and Participation among Palestinian Preschool Children.

By
Dania Issam Ahmed Odeh

This thesis was defended successfully on 10/7/2024 and approved by:

Committee Members	Signature
1. Dr. Dua'a Alwawi: Supervisor	
2. Dr. Hisham Arabalkabyeh: Co- Supervisor	
3. Dr. Mutaz Alawneh: Internal Examiner	
4. Dr. Sana Abu-Dahab: External Examiner	

Declaration

I declare that, except where explicit reference is made to the contribution of others, this dissertation is substantially my own work and has not been submitted for any other degree at the Arab American University or any other institution.

Name: Dania Issam Ahmed Odeh

ID: 202113173

Signature: Dania Odeh

Date: 2/2/2025

Acknowledgement

This thesis is first and primarily devoted to children everywhere, particularly in Palestine. These young souls endure a challenging reality daily, where practicing everyday activities often feels like a privilege rather than a routine. The sensory inputs they experience are not just unusual but often traumatizing, yet their resilience continue to inspire me every day.

I want to extend my sincere thanks to the caregivers who generously allowed me to explore the worlds of their precious children through their participation in this thesis study. The time you took to complete the outcome measures with me means so much!

Words cannot explain how much I appreciate my wonderful parents and family for your everlasting support. Despite my extremely short attention span and sensitivity to noise, your understanding and patience helped me to fully focus throughout my master journey You must have tiptoed around the home or whispered to each other a lot to avoid getting in the way of my thinking. Your silent efforts, persistent support, and kind reminders to "get back to work" were the key components in my accomplishment.

I would like to express my gratitude to my supervisors, Drs. Hisham Arab-Alkabeyeh and Dua'a Alwawi, for their support and understanding during this process. Dr. Hisham, you have greatly influenced my academic development by encouraging me to think critically and scientifically and by proving that there are no limits in learning.

Professor Sumaya Malkawi, you have been an inspiration and an ongoing source of support from the beginning. You inspired me to pursue this concept with passion and determination because you saw something in me every day.

Thank you to my friends and colleagues for always making me smile, even on the most stressful days. Every Saturday morning coffee with you enables me to forget that I have to get up at three in the morning to go to Jenin in time. The journey turned out enjoyable as well as bearable by your company.

Lastly, I would want to express my sincere gratitude to my mentors and advisors, whose counsel and insight were priceless during this process. I appreciate your confidence in me and your constant support.

Without all of you, this thesis would not have been possible. Sincere gratitude to you for everything.

With warmth and a touch of humor,

Dania Issam Odeh

Abstract

The study investigates into the patterns of sensory processing along with the level of activity participation among Palestinian preschoolers who are typically developing (TD). There are 89 children in the sample, 51.6% of whom are female and 41.6% of whom are male, ages 3 to 6. The majority, who come from various governorates, including Bethlehem (56.2%), Jenin, Ramallah, Nablus, Tubas, Tulkarm, Jerusalem, and Hebron, live in cities (61.8%), in rural regions (15.7%), and in refugee camps (21.3%).

The study investigates the association between sensory processing patterns and preschool activity participation using Arabic-validated versions of the Child Sensory Profile 2-Caregiver Questionnaire and the Preschool Activity Card Sort. With some exceptions, the majority of children are classified as "Just like others" in all sensory domains (movement, touch, hearing, vision, and oral). It's worth noting that 6-year-olds participate in physically demanding activities at higher rates.

Major demographic variables, such as living location, have a substantial impact on sensory processing and vary depending on the setting (village, city, refugee camp). Financial circumstances also have an impact on self-care practices, emphasizing the role of socioeconomic factors on child development. In order to maximize early occupational therapy programs and advance fair educational opportunities, the study emphasizes the necessity of focused interventions and inclusive educational approaches

that accommodate the varied sensory processing patterns of preschool-aged Palestinian children.

Keywords: Sensory Processing, Activity Participation, Preschool Children.

Table of Contents

List of Tables

List of Appendices

List of Definitions of Abbreviations

Full Name	Abbreviation
Sensory Processing	SP
Sensory Integration	SI
Arabic Preschool Activity Card Sort	APACS
Child Sensory Profile 2-Caregiver Questionnaire	CSP2-CQ
Occupational Therapy Practice Framework: Domain and Process	OTPF

Chapter One: Introduction

1.1 Introduction

The topics of interest in this thesis study are sensory processing and participation, and the sample population of interest in this thesis comprises children; however, parents answered questionnaires and provided information on behalf of their preschool children living in Palestine, while the main objective of the thesis study is to investigate the relationship between the sensory processing patterns of typically developing (TD) Palestinian preschool children and their participation in domains of Self-Care, High Demand Leisure, Social Interaction, Domestic Activities, Community Mobility, education, and Low Demand Leisure activities. In this chapter, the background section briefly describes the sensory processing and participation perspectives used in the thesis study and the reasons for studying sensory processing patterns and participation among typically developing preschool children from the west bank. The background section is followed by sections about problem statements specific to the context, the relevance of the thesis study in general and for the profession of occupational therapy (OT), specific research questions and hypotheses, and conceptual definitions of variables used in the thesis study.

In addition to comprehending participation and sensory processing in Palestine's typically developing preschoolers, it's critical to acknowledge the thesis' larger ramifications. Through investigating how patterns of sensory processing affect

participation in various daily life domains, this thesis study seeks to add to the international conversation about occupational therapy and child development.

This study aims to promote inclusion in developmental research by ensuring that varied cultural views are essential to our understanding of child development and well-being, in addition to addressing gaps in the literature specifically related to Arab populations. This study contributes to the global conversation on occupational therapy and child development, highlighting the importance of culturally tailored interventions. Just like their peers worldwide, Palestinian children require specialized occupational therapy approaches that respect their unique sensory processing needs, shaped by their cultural and environmental context. Such interventions help enhance their participation in daily activities and promote overall well-being.

1.2 Background

Sensory Processing is the process of registering and modulating sensory stimuli (Humphry, 2002); it also regulates and organizes sensory input and excludes unneeded stimuli (Miller et al., 2007). Therefore, sensory processing supports children’s successful participation in everyday life and facilitates understanding children's behaviors (Dunn, 2007). One way to understand and reflect on sensory processing is by referring to Dunn's Sensory Processing Framework, which promotes comprehension of sensory processing across home, school, and community environments. In addition to acknowledging individuals' self-regulation strategies, neurological thresholds, and their interplay. According to Dunn (2014), this framework has four sensory processing

patterns. These patterns include registration, seeking, sensitivity, and avoidance (Dunn, 2014).

The Occupational Therapy Practice Framework (OTPF), developed by the American Occupational Therapy Association (AOTA), offers a thorough synopsis of the core concepts, and practices in occupational therapy. Key areas of practice are outlined, such as performance skills, performance patterns, the impact of environments and settings, and occupational areas like work, education, play, leisure, and social interaction, as well as activities of daily living (ADLs) and instrumental activities of daily living (IADLs). The OTPF places a strong emphasis on an occupation-based strategy that gives meaningful activities and client-centered practice first priority. It emphasizes the value of participating in activities that are part of daily life for promoting health and well-being and provides specifics on the occupational therapy process, including evaluation, intervention, and outcome assessment. The OTPF guarantees that therapy is customized to each patient's needs by emphasizing on assisting persons in fully engaging in these roles and routines, which promotes a meaningful and rewarding existence (American Occupational Therapy Association (AOTA, 2020).

Participation has been defined by WHO (2001) as the involvement in life situations that are vital for well-being, development, and life experiences (WHO,2001). A Sweden study identified participation as the "ability to influence," perceiving that when a child is provided with a sense of consistency and conception of the surrounding world, their participation in everyday life will be supported (Sandberg & Eriksson,

2010). The relationship between occupations and sensory integration has been clarified from the beginning of Anna Jane Ayres' work. Since sensory integration interventions are essential to facilitate children's engagement in self-care, play, learning, social participation, and community mobility, proper registration, processing, and integration of the sensory input of different pathways is required (Parham, 2002). Healthcare and rehabilitation view enhancing children's participation as an important goal (King et al., 2009).

Evidence indicates that children's participation in diverse activities of daily living is influenced by their sensory processing patterns. They grasp social expectations, form friendships, and develop communication skills through participation (Bundy et al., 2007; Dunn, 1997; Dunn, 2007; Engel-Yeger & Jarus, 2008; Engel-Yeger & Ziv-On, 2011; Engel-Yeger et al., 2011). While supporting this, participation can be planned by understanding sensory processing patterns (Armstrong-Heimsoth et al., 2021).

1.3 Research Problem

Despite the diversity of studied populations in related literature, there is a lack of evidence addressing Arab populations. On the one hand, it was noted that among studies that concern the association between sensory processing and participation; the fewest numbers of conducted studies target typically developing children (including Choi & Jung, 2021; Ismael et al., 2015; Malkawi et al., 2017, Nesayan et al., 2018; Sleeman & Brown, 2021). On the other hand, minimal studies targeted preschool children (for example, Nesayan et al., 2018), and a focus was distinguished in the

research considering sensory processing and participation with children who are diagnosed with autism spectrum disorder (for example, Ismael et al., 2018; Little et al., 2015; Piller & Pfeiffer, 2016; Schaaf et al., 2015).

Moreover, the majority of the research that has been conducted thus far has come from Western contexts, which limits the generalizability of the findings across a variety of cultural and geographic contexts, including populations of Arab descent. While it remains crucial to take into account the unique cultural and environmental aspects of Arab communities while attempting to comprehend how children's participation outcomes are impacted by their sensory processing. Closing these gaps will help us create culturally appropriate interventions and improve our knowledge of how Arab preschool children develop their senses at various developmental stages.

This study underscores the importance of cultural context in studies of sensory processing and participation and calls for greater study focused on Arab children who are generally developing, particularly in preschool age groups.

1.4 Research Relevance and Significance

Evidence indicates that children reach vital developmental milestones through participation; their choices of involvement in activities are influenced by their sensory processing patterns (Bundy et al., 2007; Dunn, 1997; Dunn, 2007; Engel-Yeger & Jarus, 2008; Engel-Yeger & Ziv-On, 2011; Engel-Yeger et al., 2011). Hence, enhancing children's participation and occupational performance is fundamentally facilitated by knowledge of children's sensory needs (Provost, B et al., 2009).

Preschool is a crucial time to develop a learning foundation for later learning. Sensory modulation issues might hinder the ability of preschoolers to attend to vital input in early learning situations. As for their responses to be appropriately graded to the continuously changing sensory experiences of daily life, preschoolers need the capacity to control and organize the intensity and nature of their responses to sensory input (James et al., 2011).

The Palestinian Central Bureau of Statistics declared that 37.3% of the total Palestinian population are children under 14 years old, and 35.2% of the west bank's population are children under the age of 14, including preschoolers (PCBS, 2023). Although sensory processing disturbances are more common in children with impairments, estimates of prevalence rates for children in the general population have been reported to range from 10% to 55% (Critz et al., 2015; Jorquera-Cabrera et al., 2017; Kong & Moreno, 2018; Navarrete-Muñoz et al., 2019). Adding to this, a recent study used the Arabic-Short Sensory Profile (A-SSP) to assess kindergarten students' sensory processing ability based on parents' perceptions. In Amman, Jordan, 37% of 957 typical kindergarten students demonstrated a discernible difference in their sensory processing, while 24% indicated a probable difference. These results highlight the necessity of improving Jordanian children's sensory processing support and include sensory processing as a variable in studies of typical child development (Al-Tarawneh et al., 2023).

Growing questions regarding whether sensory processing deficits may be potential factors that could negatively affect a child's health and development have created a

promising area of research, even though the evidence for typically developing children is still significantly limited (Fernández-Pires et al., 2020). The current thesis study concerns normative data, which allow for identifying sensory processing patterns and activity participation in a reference population (Palestinian preschool children). Thus, targeting this population will help describe what usual is regarding sensory patterns and activity participation (Ware & Keller, 1996) in Palestinian preschool children. This thesis study is expected to contribute to developing knowledge of preschool children living in a Palestinian context.

At the time of this study, norms specific to Arab populations, particularly in developmental and sensory processing assessments, had not yet been fully established. This absence of comprehensive norms was due to limited research and validation studies that were still in progress. Consequently, the researcher relied on tools and frameworks validated in culturally similar settings.

There is a need for culturally sensitive tools that could accurately reflect the unique characteristics of Arab children. In response to this gap, several approaches were employed to ensure culturally relevant and accurate assessments, throughout this thesis study.

One effective strategy involved the adaptation of tools that had been validated in culturally similar settings. For example, the Arabic Preschool Activity Card Sort (APACS) was adapted from the American Preschool Activity Card Sort. This tool was modified to align with cultural and contextual factors relevant to Arab populations, making it a valuable resource for assessing sensory processing and participation in

Arab children. While comprehensive norms for Arab populations were still under development, adapting tools validated in culturally similar settings helped enhance the accuracy and relevance of assessments for Arab children.

Additionally, research reveals that environmental factors might affect neurological development, particularly sensory processing. For instance, the results of Caron et al. (2012) provide crucial information regarding the disparities between cultural approaches to sensory processing since typically developing children from various cultures scored differently on Dunn's 1999 Short Sensory Profile (Dunn,1999). This highlights the need to specifically study sensory processing patterns among typically developing preschool children in Palestine.

Furthermore, examining sensory processing in Palestinian preschoolers who are typically developing is crucial for determining their educational and culturally relevant interventions as well as for comprehending their developmental needs. This study intends to offer insights that help improve early childhood education and intervention strategies targeted to support optimal developmental outcomes for Palestinian preschoolers by investigating sensory processing within the cultural context of the Palestinian preschoolers.

1.5 Research Aim, Objectives, Questions, Hypothesis

1.5.1. Research Aim

This study aims to explore the relationship between the sensory processing patterns among typically developing Palestinian preschool children and their participation.

1.5.2. Research Objectives:

- Assess sensory processing patterns among typically developing (TD) preschool Palestinian children.
- Evaluate activity participation levels among typically developing (TD) preschool Palestinian children.
- Examine the association between sensory processing patterns and activity participation levels among TD preschool Palestinian children.

Examine whether there are statistically significant differences in the level of participation in preschool activities among preschool-aged children, based on various factors including their relationship with family members, gender, age, child ordinal family, number of siblings, place of living, governorate of residence, attendance at school or kindergarten, and the financial situation of the family.

1.5.3. Research Questions

- What are the sensory processing patterns among (TD) preschool Palestinian children?
- What are the activity participation levels among (TD) preschool Palestinian children?
- Is there a relationship between sensory processing patterns and activity participation among (TD) preschool Palestinian children?
- Are there any statistically significant differences in the level of participation of preschool-aged children in preschool activities based on various factors such as

their relationship with family members, gender, age, child ordinal family, number of siblings, place of living, governorate of residence, attendance at school or kindergarten, and the financial situation of the family?

1.5.4. Research Hypothesis

This thesis proposes to investigate the following hypothesis on the relationship between activity participation and sensory processing patterns among typically developing Palestinian preschoolers:

- Preschool Palestinian children who are typically developing (TD) will have significant variety in their sensory processing patterns.
- Palestinian preschoolers who are typically developing (TD) will have variation in their levels of activity participation.

To what extent do sensory processing patterns, as described by Dunn (2014), correlate with various participation domains (i.e., Self-Care, High Demand Leisure, Social Interaction, Domestic Activities, Community Mobility, Education, and Low Demand Leisure) among typically developing preschool children living in the West Bank? Specifically, how do different sensory processing patterns relate to the frequency and quality of engagement in these participation domains?

1.6 Definition of Terms

1.6.1. Sensory Processing

A neurological process that involves sensory input to the brain's central nervous system and sequel behavioral reactions to help control arousal levels throughout the day. During the lifespan, everyone exhibits sensory processing patterns (Dunn, 2007).

1.6.2. Typically Developing Children

Any child under the age of 14 who does not have a chronic medical issue is referred to as a typically developing child (Dhas, 2021), As stated on page 76 of the American Academy of Pediatrics (2021), children who are developing typically "exhibit skills, habits, and developmental milestones within the typical range for their age and cultural background."

1.6.3. Participation

A person's participation in life experiences is concentrated on the activities that a person engages in, has access to, and has the opportunity to engage in within the community (World Health Organization, 2001).

1.7 Summary

Overall, the fundamental values of occupational therapy, including client-centeredness, which focuses on satisfaction and choices, are reflected through participation (Gray & Hendershot, 2001). Furthermore, healthcare and rehabilitation view enabling children's

participation as an important goal (King et al., 2009). The development of children depends on their participation. Children frequently learn about social norms, communicate effectively, form stronger bonds with others, and achieve significant milestones through participation, all of which help them develop the knowledge and skills necessary to succeed at home and in the community (Law et al., 2006). Though the enhancement of children's participation and occupational performance is fundamentally facilitated by knowledge of children's sensory strong and weak points (Provost, B et al., 2009).

This thesis study intends to identify sensory processing patterns and participation levels and investigate their relationship among preschool Palestinian children. To facilitate understanding children's behaviors by being aware of their fundamental patterns of sensory processing. By doing so, designing activities and interventions that will help children participate in daily life (Dunn, 2007). Accordingly, participation in activities increases life satisfaction, which influences one's health (Law, 2002). Recent research has emphasized the importance of sensory processing in determining the participation of children. A child's capacity to participate in daily activities can be greatly impacted by sensory processing challenges, which may have an impact on the child's general development and well-being (Ben-Sasson et al., 2009; Miller et al., 2007). Comprehending the distinct sensory behaviors of Palestinian preschool-aged children is crucial in customizing interventions that foster significant engagement in cultural and environmental settings (Dunn & Westman, 1997).

Furthermore, studies have shown that children's emotional control, social competence, and participation in activities are all improved by efficient sensory processing (Schaaf et al., 2014; Parham & Mailloux, 2010). This study attempts to fill in gaps in the literature and offer insights for focused interventions to assist holistic child development by examining the effect of sensory processing on preschoolers' participation levels in Palestine (Little et al., 2018).

Chapter Two: Literature Review

Atypical sensory integration affects how well children can participate in daily activities and routines because it makes it difficult for them to process and/or organize sensory information. Participation is defined as taking part in everyday activities; it is crucial for fostering life experiences and the growth of social, cognitive, and sensorimotor skills. Children who have these skills improved can engage fully in activities and occupations that are appropriate for their age. Based on the evident correlation between the processing of sensory information and participation across occupations; occupational therapists are recommended to evaluate preschoolers in terms of their sensory processing skills to promote their participation (Gonçalves & Abreu, 2022). Across literature concerning typically developing children of various ages, it has been proved that sensory processing characteristics have a considerable impact on their participation diversity, intensity, and independence (Sleeman & Brown, 2021). As proved by a scoping review which indicated that correlations between sensory processing, several characteristics of behavior, and participation in children with and without problems have been demonstrated by research (Dunn et al., 2016). For example, children with low sensory registration engage in fewer activities, and children with lower sensory sensitivity and avoidance levels engage more in social and skill-based activities.(Ismael et al., 2015). In addition, there is a significant correlation between children's leisure participation and sensory processing (Choi & Jung, 2021).

2.1. Preschool Aged Children

Preschool age usually refers to the time in a child's life that occurs between the ages of three and five, right before they start formal schooling. This period, which includes notable advancements in the cognitive, social, emotional, and physical domains, is critical for the development of young children. Preschool age is characterized by rapid learning and development, where children acquire critical abilities that get them ready for school, according to the Centers for Disease Control and Prevention (CDC, 2021). In terms of sensory processing among preschool children, a study contrasting sensory processing in preschoolers with Developmental Coordination Disorder (DCD) and age-matched typically developing peers, showed that children with DCD had challenges with a variety of sensory processing patterns (poor registration, sensitivity, and avoidance) and domains (auditory, vestibular, touch, and oral). Additionally, among preschoolers with DCD alone, there was a correlation between issues with motor coordination and issues with sensory processing patterns (sensitivity and avoidance) and locations (touch and auditory). This suggests that problems in sensory processing may be involved in the etiology of DCD, emphasizing the significance of testing sensory processing abilities in preschoolers with DCD (Mikamiet al., 2020).

Another cross-sectional study concerning preschoolers emphasized how crucial the parent-child bond is for children who manifest sensory regulation difficulties. By examining the link between sensory regulation and child attachment among preschoolers referred to a psychiatric clinic. Taking onto consideration excluding preschoolers with a pervasive developmental disorder or an intellectual disability

(IQ70 or less), as these disorders could more easily be confused with sensory regulation symptoms. The key finding of this study showed that a large proportion of these preschoolers present challenging sensory regulation. Particularly, sensory regulation issues were identified in more than half of the preschoolers in the sample, and children with sensory regulation dysfunctions also exhibited poor self-control, and those with disorganized controlling attachments are more likely to exhibit sensory-seeking and sensory-avoidance symptoms (Mubarak et al., 2016).

Besides, a retrospective study targeting typically developing preschool children in the United States found that boys and girls alike prefer sensory stimuli in preschool settings, regardless of gender. Also, boys and girls engage in a similar level of activity during play in preschool settings. Indicating no evidence that boys and girls play at different levels of activity or that they prefer different degrees of activity (Ismael & Lawson, 2012).

2.2. Sensory Processing in Children

The phrase "sensory processing" is wide and mainly refers to how neural systems, including the peripheral and central nervous systems and receptor organs, handle sensory information. Dunn asserts that sensory processing is a challenging process. Input from the senses is provided to the brain by the environment and the body (Dunn, 2014). To comprehend experiences and plan suitable responses, the brain arranges, integrates, synthesizes, and employs this information. Individuals are able to react to particular sensory inputs automatically, effectively, and comfortably by reason of information processing (Dunn, 2007; Yack et al., 2002). Cognitive functions including

attention, visual perception, memory, and planned action depend on the neurobiological process, which has five stages: registration, modulation, discrimination, integration, and praxis (Crozier et al., 2016; Eeles et al., 2013).

It has been found that children who struggle with sensory processing and sensory integration (SP-SI) show different levels of participation in play, academic, and leisure activities when compared to peers who do not experience SP-SI challenges (Bar-Shalita et al., 2008). Multiple settings of functional limits in adaptive behavior, executive skills, and occupational performance have been linked to SP-SI problems (Adams et al, 2015; Ben-Sasson et al., 2009; Lane et al., 2010).

2.3. Dunn's Sensory Processing Framework

Dunn's Sensory Processing Framework promotes comprehension of sensory processing across home, school, and community environments. In addition to acknowledging individuals' strategies of self-regulation, neurological thresholds, and their interface.

According to Dunn (2014), there are four primary sensory processing patterns, which include: Firstly, registration, which is represented by a passive strategy of self-regulation and a high neurological threshold, individuals with registration sensory patterns face difficulties noting sensory circumstances that are simply noticeable by others. Secondly, seeking sensation, which is represented by an active strategy of self-regulation and a high neurological threshold, individuals with seeking sensation patterns are pleased by their sensory experiences. Thirdly, the sensitivity of sensation, which is represented by a passive strategy of self–regulation and a low neurological

threshold, individuals with a sensitivity to sensation patterns usually observe sensory circumstances more than others. Lastly, avoiding sensation, which is represented by an active strategy of self-regulation and a low neurological threshold, individuals with avoiding sensation pattern favor establishing ritualized routines of daily living and discovering alternatives to restrict sensory circumstances (Dunn, 2014). Thus, the role of sensory systems in the promotion of activity participation in usual contexts should be considered by occupational therapy practitioners (Lin, 2020).

2.4. The Child Sensory Profile 2

Several studies have employed sensory assessments to evaluate children between the ages of 3 and 6 years. These studies aim to understand how young children process sensory information and how it influences their behavior and development.

One notable study is by Dunn (2007), which utilized the Sensory Profile, a caregiver questionnaire that measures children's sensory processing abilities. The study focused on children aged 3 to 6 years to determine typical sensory processing patterns and how these patterns relate to daily functional performance. Findings indicated that sensory processing significantly affects children's participation in home, school, and community activities (Dunn, 2007).

Another significant study by Tomchek and Dunn (2007) used the Short Sensory Profile (SSP) to evaluate sensory processing issues in children with autism spectrum disorders (ASD) aged 3 to 6 years. This assessment highlighted distinct sensory processing patterns in children with ASD compared to typically developing children, revealing

that children with ASD exhibited more significant sensory processing difficulties (Tomchek & Dunn, 2007).

Furthermore, Lane et al. (2010) conducted a study employing the Sensory Processing Measure-Preschool (SPM-P) to assess sensory processing in preschool children. The study included children aged 3 to 5 years and aimed to provide normative data on sensory processing and praxis. Results emphasized the tool's utility in identifying sensory processing issues and aiding in the development of intervention strategies for young children (Lane et al., 2010).

The child sensory profile 2 has been used extensively across literature, for instance, Schulz & Stevenson (2018) used the CSP2 to assess sensory function among typically developing children, and age-matched peers diagnosed with ASD, to further examine the connection between sensory hypersensitivity and the limited interests and repetitive behaviors that are common in this group of children, indicating that sensory hypersensitivity is closely linked to the core symptom of autism spectrum disorder—repetitive behaviors—and demonstrating that this connection is not unique to autism spectrum disorder. In typically developing individuals, repetitive behaviors significantly increased with sensory hypersensitivity (Schulz & Stevenson, 2018).

The CSP2 was also used to develop profiles that describe the sensory preferences to sensory stimulation as reflected by Dunn's four sensory quadrants, among children aged 7 to 12 with and without a history of special educational needs (SEN), to investigate the relationship between sensory processing and literacy skills in these children. Reporting that there was a distinct impairment in "filtering out" unnecessary

auditory information that was substantially connected with both literacy scores and the CSP-2 scores, the SEN group demonstrated significantly higher ratings on the CSP-2 quadrants (Armstrong-Gallegos & Nicolson, 2020).

Moreover, Little et al. (2016) used the CSP2 in a cross-sectional study to classify categories of children aged 3-14 years old in a community sample with and without developmental conditions, based on sensory processing patterns. Resulting in five sensory categories across this population of children (The intense sensory profile had high sensory scores, whereas the balanced sensory profile exhibited low sensory processing scores, the vigilant sensory profile had increased sensitivity to and avoidance of sensory inputs as well as low scores for seeking and registration, the interested sensory profile was differentiated by high sensory seeking and poor scores on other sensory patterns, while the "mellow until" sensory profile displayed high registration and avoidance). Reflecting the variability in all children, not just those with conditions (Little et al., 2016). As well, another cross-sectional study aimed to investigate potential links between central auditory processing and sensory processing, as well as to examine the sensory profile of children with auditory sensory processing impairment as measured by the CSP-2. According to the normative CSP 2 results, children with CAPS have more sensory differences than their peers (differences appeared for the seeker and sensor in the quadrants, in the sensory section, in the visual, touch, movement, and oral systems, and in the behavioral section, where they are present in the conduct and attention response), but there was no correlation between sensory and CAPS (Buffone et al., 2022). And a study to describe sensory processing

in Tatton-Brown Rahman syndrome and Sotos syndrome patients' children and determine whether each syndrome is associated with a particular sensory profile. According to CSP-2, there were noticeable changes in sensory Registration in 77% of children with Sotos syndrome and 85% of children with TBRS. There were also noticeable disparities in Body Position (79% Sotos; 90% TBRS) and Touch (56% Sotos; 60% TBRS). According to correlation analyses, difficulties with sensory processing tend to be linked to autistic features, anxiety, and some areas of ADHD in both syndromes. Differences in sensory processing in Sotos were also linked to poor abilities for adaptive behavior (Smith et al., 2022).

The child sensory profile 2 was additionally used among a variety of children populations across literature, including typically developing children (for example, Little et al., 2016), children with Special Educational Needs (for example, Armstrong-Gallegos & Nicolson, 2020), children with Central Auditory Processing Disorder (CAPD) (for example, Buffone et al., 2022), children diagnosed with Sotos Syndrome and Tatton-Brown Rahman Syndrome (for example, Smith et al., 2022) and children with Autism Spectrum Disorder and typically-developing children (Schulz & Stevenson, 2018).

. To conclude, the Child Sensory Profile 2 (CSP2) is widely used in literature, which emphasizes its critical importance in comprehending how sensory processing affects children's behavior and development in a variety of contexts. Children with developmental difficulties as well as those who are generally developing have profited from CSP2's insightful information about sensory preferences and sensitivities and

their significant effects on day-to-day functioning. In addition to improving our knowledge of sensory processing conditions this body of research contributes to creating focused interventions and support plans that are adapted to the individual sensory profiles of children. CSP2 continues to play a key role in supporting holistic approaches to improve children's quality of life and well-being as more research explores these relationships.

2.5. Activity Participation

On one hand, Participation has been identified by WHO (2001) as" an individual's involvement in a life situation", that is perceived in engaging in daily activities and occupations that are vital for well-being, development, and life experiences (WHO,2001). On the other hand, preschool staff in a Sweden study considered participation as the "ability to influence", perceiving that when a child is provided with a sense of consistency and conception of the surrounding world, his/her participation in everyday life will be supported (Sandberg & Eriksson, 2010). Subsequently, when assessing children's health and functioning, participation is considered a significant factor to assess and a vital aim of rehabilitating children of different statuses of ages and health status. Particularly, preschool children, whose participation can anticipate their futures in terms of educational and social integration (Bart et al., 2007).

2.6. Occupational Therapy Practice Framework: Domain and Process

The American Occupational Therapy Association (AOTA) offers a thorough summary of fundamental OT principles in its Occupational Therapy Practice Framework

(OTPF). This framework covers a variety of domains, including performance skills, performance patterns, and occupations like assisted living, individual assisted living, and social participation. It highlights how crucial it is to participate in worthwhile daily activities for one's health and wellbeing. The OTPF establishes a connection between participation and sensory processing by acknowledging that challenges with sensory processing could restrict an individual's capacity to participate completely in everyday activities. In order to promote the best possible participation and performance, effective occupational therapy interventions address these sensory processing issues (American Occupational Therapy Association [AOTA], 2020).

2.7. Participation of preschool aged children

Several studies have assessed the participation of children aged 3 to 6 years using various outcome measures to understand their engagement in daily activities and the factors influencing their participation.

Another significant study by Haley et al. (1992) applied the Pediatric Evaluation of Disability Inventory (PEDI) to evaluate functional performance and participation in daily activities for children aged 3 to 6 years. The PEDI assesses self-care, mobility, and social function, providing a comprehensive overview of a child's abilities and participation levels. The study underscored the effectiveness of the PEDI in identifying areas where children may need support to enhance their participation in daily routines (Haley et al., 1992).

Sparrow et al. (2005) used the Vineland Adaptive Behavior Scales (VABS) to measure adaptive behaviors and participation levels in children aged 3 to 6 years. This tool

assesses communication, daily living skills, socialization, and motor skills. Their research found that the VABS is valuable for understanding the developmental progress and participation capabilities of young children, offering insights for targeted interventions (Sparrow et al., 2005).

Additionally, Berg et al. (2012) utilized the Preschool Activity Card Sort (PACS) to evaluate activity participation among preschool children. The PACS involves children sorting pictures of activities based on their preferences and frequency of engagement. This method provides a child-friendly approach to assessing participation, highlighting which activities are most engaging and enjoyable for children in this age group (Berg et al., 2012).

These studies collectively emphasize the importance of using diverse outcome measures to assess the participation of young children. Each tool offers unique insights into different aspects of participation, providing a holistic understanding of how children engage in and are supported in their daily activities.

2.8. The Preschool Activity Card Sort

The preschool activity card sort was used to assess participation patterns in regular household, educational, and social activities among various preschool children's populations in the literature. These populations included children with autism spectrum disorder (LaVesser & Berg, 2010; Sood et al., 2014), children with typical development (Gronski et al., 2012), and children with cerebral palsy (Abu-Dahab et al., 2020).

2.9. Relationship Sensory Processing and Activity Participation

Despite the diversity of the population's demographic information, all the next summarized literature is not based on studies conducted in Arab countries, since no evidence has addressed Arab populations. However, the following studies include studies focusing on sensory processing and participation within the typically developing children population, in a clinically diagnosed population, and compare a sample of clinically diagnosed children with typically developing peers. Notably, there is a scarcity of studies targeting typically developing children. This might be related to the evidence that specific types of clinical diagnoses, including schizophrenia, autism spectrum disorder, attention-deficit/hyperactivity, Fetal Alcohol Syndrome, and Fragile X syndrome manifest atypical sensory processing (Khodabakhshi & Malekpour, 2014).

2.10. Relationship between Sensory Processing and Participation: Within Typically Developing Population

Recent studies have continued to explore sensory processing and participation among typically developing children aged 3-6 years. These studies highlight various dimensions of sensory experiences and their impact on children's daily activities and interactions.

In summarizing studies on Sensory processing and participation within typically developing children; a correlational study focusing on typically developing children between the ages of 6 and 14 showed that the majority of these children in the four sensory quadrants engaged in similar activities, such as drawing or coloring, playing

video games, or listening to music. One explanation is that children with various patterns of sensory processing interact with these activities in various ways, while only sensory-avoiding children, showed clear preferences regarding the other sensory patterns, favoring reading, doing chores, and solving puzzles, as these activities have minimal social interaction requirements and therefore do not require engaging in stimulating activities. Additionally, the findings revealed significant associations which indicate that children with low sensory registration engaged in fewer activities, children with lower sensory sensitivity engaged in social and skill-based activities, children with lower sensory avoidance engaged in social activities, and children with lower sensitivity and lower avoidance to sensory stimuli preferred social activities (Ismael et al., 2015). Another non-experimental cross-sectional study conducted in Tehran indicated that occupational therapists should consider sensory processing factors while working with children to increase aspects of their participation in daily activities. As the findings of this study demonstrate that sensory processing characteristics in typically developing children have a considerable impact on their participation diversity, intensity, and independence. This study discovered a causal relationship between children's responses to sensory input and the frequency with which they participate in daily activities, as this is particularly influenced by a child's response to tactile input. It also found that typically developing school-aged children's sensory proprioceptive input contributed uniquely to their participation diversity (how many different activities a child engages in). Additionally, this study discovered that these children's understanding of their body's position in space and their capacity to use this

understanding to physically coordinate themselves while participating; helps them participate independently (Sleeman & Brown, 2021).

In addition, Choi and Jung (2021) investigated the relationship between children's leisure activities and sensory processing in the age range of 11 to 12 years, emphasizing how sensory processing influences experiences and task participation. (Choi & Jung, 2021).

Along with that, a study focusing on children between the ages of 6 and 10 who are developing neurotically, has unexpectedly discovered that 43% of these children had abnormal sensory integration. It discovered significant correlations between multisensory processing and the areas "Activities of daily living (ADL) " and "Academic Activities," as well as correlations between the areas "Academic Activities" and "Habits and Routines" with auditory processing. It also discovered a correlation between "Tactile Processing" and the domains "ADL" and "Play and Leisure," a correlation between the oral sensory processing section and "ADL" and an association between the sections "Emotional responses," "Behaviors resulting from sensory processing," and "Emotional reaction," as well as an association between "Behavior and emotional regulation" and the areas "ADL" "Academic activities," "Social skills," and "Habits and Routines."

Moreover, this study revealed that all participation categories, except "Social skills," were influenced by the "Inattention/Distractibility" component. Additionally, there was a substantial correlation between performance in the domain of "ADL" and the four quadrants (low registration, sensory seeking, sensory sensitivity, and sensory

avoidance), and the area of "Academic activities" and the factor "Fine/perceptive motor abilities". Additionally, a link was discovered between "Academic activities" and sensory seeking and low registration. Another link was discovered with the quadrants "Sensory seeking" "Sensory sensitivity" and the "Play and Leisure" domain. There was an association between the quadrant "Sensory avoidance" and the domain "Social skills." Finally, the quadrants "Sensory sensitivity," "Sensory avoidance," and "Low registration" were associated with the "Habits and Routines" domain (Gonçalves & Abreu, 2022).

2.11. Relationship between Sensory Processing and Participation: Within a Clinically Diagnosed Population

Several studies have examined sensory processing and participation within clinically diagnosed populations of children. These studies provide valuable insights into how sensory processing challenges impact the daily lives and activities of children with various diagnoses.

These studies collectively underscore the profound impact of sensory processing difficulties on the participation of children with clinical diagnoses. They highlight the necessity of individualized sensory interventions to enhance participation and overall quality of life for these children.

Regarding clinically diagnosed population, low levels of play, self-care, and school participation are found to be associated with sensory avoidance among school-aged children with fragile X syndrome (Baranek et al., 2002). A consistent association between maladaptive behaviors and sensory processing patterns is found among

children with down syndrome ages ranging between 2 -10 years old (Watling, 2019). As this relationship was also shown among adults through literature, for example, a significant relationship between reduced participation, specific types of sensory processing, recovery, and quality of life is found among 18-50 years old adults with serious mental health issues (Pfeiffer et al., 2014).

Additionally, a systematic review targeting ASD children aged 5-13 years old showed that the participation of these children is significantly influenced by their sensory processing (Ismael et al., 2018). Yet, there was an obvious trend in literature concerning children diagnosed with ASD, for instance, a study conducted with school-aged ASD children found that different dimensions of activity participation are affected by the sensory response patterns of these children (Little et al., 2015). Another study identified links between participation and sensory factors of 4-8 years old children who are diagnosed with ASD (Schaaf et al., 2015). Similarly, Piller and Pfeiffer (2016) found that participation could be facilitated or inhibited by environmental sensory characteristics for children with ASD (Piller & Pfeiffer, 2016).

2.12. Relationship between Sensory Processing and Participation: Compared Among Clinically Diagnosed and Typically Developing Population

Clinically identified groups with atypical sensory processing differ markedly in their sensory processing and participation from typical developing children. This highlights differences in preferences and difficulties in everyday activities that are impacted by sensory regulation.

a study that compared a sample of 6-10 years old clinically diagnosed (have atypical sensory processing patterns) with typically developing (have typical sensory processing patterns) children in terms of preferences of daily living activities, a more significant preference for physical activities was displayed by children with atypical sensory processing patterns and a more significant preference for self-improvement activities was associated with lower energy levels (Engel-Yeger, 2008). While Bart and colleagues (2011) prospectively assessed the differences in sensory modulation and participation between term and late preterm infants, finding that late preterm children's risk of developing sensory modulation disorder increases, displaying less participation, and causing less parental satisfaction (Bart et al., 2011). Additionally, an Australian study, targeting two groups of children (typically developing children and peers with sensory-based impairments) between 2-18 years old, demonstrated that children who were identified as having sensory processing difficulties showed noticeably lower levels of participation and enjoyment than children who were identified as having typical sensory processing skills. However, there was little difference in the amount of time that each group of children participated. There was a weak to moderate link between children's participation and all categories of sensory processing, except for taste and smell sensitivity. Further research revealed that Low Energy (proprioceptive) scores were important predictors of enjoyment dimension scores for the Play and Leisure domain of participation; seeking sensation and visual/auditory sensitivity scores predicted frequency dimension scores for the Academic Activities domains of

participation; and seeking sensation scores were a significant predictor of the level of participation dimension scores for the Daily Care domain (Chien et al., 2015).
Also, a study at the University of Haifa, comparing typically developing children aged 6-11 years old, and age-matched peers with visual and hearing impairments, concluded that children with visual and hearing impairments display more SP difficulties and as a result, lower participation (Hamed-Daher & Engel-Yeger, 2019).

Whereas literature comparing typically developing children with peers diagnosed with ASD included a cross-sectional Iranian study investigating the relationship between sensory processing and participation of ASD children with normal intelligence and typically developing peers, suggesting that there is no relationship between sensory processing and participation for both ASD children and typically developing children (Ghanbari et al., 2018), likewise a Malaysian cross-sectional case-control, compared 6-10 years old typical children with ASD children in terms of sensory processing and occupations participation, finding that ASD children manifest higher levels of sensory processing difficulties and lower participation when compared with typically developing peers (Loh et al., 2020).
Another recent Malaysian study investigating sensory processing and childhood participation in 6-10 years old children with and without ASD, found that children with ASD demonstrate a higher level of sensory processing difficulties, combined with lower levels of participation when compared with their peers (Loh et al., 2021). In a like manner, a Taiwanese cross-sectional study found that ASD children aged 36 -71

months show low participation in physical, social, and play areas and in parallel; higher scores in Dunn's four sensory patterns when compared with typically developing peers (Lin, 2020).

2.13. Literature Review Conclusion

In conclusion, research highlights the important role that sensory processing abilities play in influencing children's engagement in everyday activities in a range of developmental contexts. Research has repeatedly shown that atypical sensory processing patterns, including sensory seeking or sensitivity, are associated with lower variation and intensity of participation, which affects social, intellectual, and recreational activities (Ismael et al., 2015; Gonçalves & Abreu, 2022; Sleeman & Brown, 2021). This group of studies emphasizes how important it is to identify and address sensory processing issues in preschoolers in order to maximize participation results and foster holistic development.

Findings of reviewed literature widely and diversely support the marked relationship between sensory processing and participation (e.g., Bart et al., 2011; Chien et al., 2015; Sleeman& Brown, 2021). Adding to that, the fundamental values of occupational therapy; including client-centeredness which focuses on satisfaction and choices, are reflected through participation (Gray & Hendershot, 2001). Furthermore, healthcare and rehabilitation view enabling children's participation as a significant goal (King et al., 2009). Plentiful chances for physical, social, cognitive, and communication skills development are offered by participation (Klaas et al., 2009). Though the enhancement

of children's participation and occupational performance is fundamentally facilitated by knowledge of children's sensory strong and weak points (Provost, B et al., 2009).

Chapter Three: Methodology

This study will investigate the relationship between the sensory processing patterns among typically developing Palestinian preschool children and their participation. This chapter will detail the methods and procedures used to accomplish this aim.

3.1 Purpose of the Research

This study mainly investigates the relationship between the sensory processing patterns among typically developing Palestinian preschool children and their participation.

This study is based on the assumption that sensory Processing patterns are significantly correlated with participation domains among typically developing preschool children living in the west bank.

3.1.1 Research Aim

This study aims to explore the relationship between the sensory processing patterns among typically developing Palestinian preschool children and their participation.

3.1.2. Research Objectives:

- Assess sensory processing patterns among typically developing (TD) preschool Palestinian children.
- Evaluate activity participation levels among typically developing (TD) preschool Palestinian children.
- Examine the association between sensory processing patterns and activity participation levels among TD preschool Palestinian children.

- Examine whether there are statistically significant differences in the level of participation in preschool activities among preschool-aged children, based on various factors including their relationship with family members, gender, age, child ordinal family, number of siblings, place of living, governorate of residence, attendance at school or kindergarten, and the financial situation of the family.

3.1.3. Research Questions

- What are the sensory processing patterns among (TD) preschool Palestinian children?
- What are the activity participation levels among (TD) preschool Palestinian children?
- Is there a relationship between sensory processing patterns and activity participation among (TD) preschool Palestinian children?
- Are there any statistically significant differences in the level of participation of preschool-aged children in preschool activities based on various factors such as their relationship with family members, gender, age, child ordinal family, number of siblings, place of living, governorate of residence, attendance at school or kindergarten, and the financial situation of the family?

3.1.4. Research Hypothesis

This thesis proposes to investigate the following hypothesis on the relationship between activity participation and sensory processing patterns among typically developing Palestinian preschoolers:

- Preschool Palestinian children who are typically developing (TD) will have significant variety in their sensory processing patterns.
- Palestinian preschoolers who are typically developing (TD) will have substantial variation in their levels of activity participation.
- The sensory Processing patterns described by (Dunn, 2014) are significantly correlated with participation domains (i.e., Self-Care, High Demand Leisure, Social Interaction, Domestic Activities, Community Mobility, education, and Low Demand Leisure) among typically developing preschool children living in the west bank.

3.2. Research Design

The researcher will adopt a cross-sectional design to identify sensory processing patterns and participation in typically developing preschoolers and explore associations between them. A cross-sectional design is practical and proper to identify associations (Setia, 2016) between sensory processing and participation; therefore, it corresponds with the study's aims. Despite that, the literature indicates that researchers should conduct this type of design cautiously, primarily when deriving relationships and their directions, as it is limited to a one-time measurement (Setia, 2016). However, it is reasonably cheap and fast in conduction, and parents of preschool children will be chosen following a previously determined set of criteria, in addition to being a sound design to collect data on sensory

processing and participation among preschool children and identify the relationship between both aspects (Mann, 2003; Setia, 2016).

3.3. Research Participants

A set of inclusion and exclusion criteria describe parent/s who will participate in the study, considering the goals and feasibility of the study.

- Inclusion Criteria

Criteria for Children's Inclusion:

The child has to be between the ages of 3 and 6.11.

The child must live in one of the following West Bank locations: Jenin (north), Bethlehem (south), or Ramallah (central). This geographic selection guarantees a sample that is representative of the West Bank's various regions.

Physical, neurological, behavioral, intellectual, learning, or psychological issues must not exist in the child.

The child needs to reside in a typical family setting. Compared to children living in a regular family environment, institutionalized children frequently display more severe impairments with sensory processing (Cermak & Daunhauer, 1997; Wilbarger et al., 2010).

The criteria for children's exclusion:

If the child is diagnosed with a clinical diagnosis that is known to disrupt normal sensory processing, such as Autism Spectrum Disorder, Fetal Alcohol Syndrome, Attention-Deficit/Hyperactivity Disorder, Schizophrenia, or Fragile X Syndrome, they

will not participate in the study (Khodabakhshi & Malekpour, 2014).

If the child is older than 6.11 years old or less than 3 years old, they will be eliminated.

If the child is not Palestinian, does not live in the West Bank, or has been institutionalized, they will be disqualified. In the demographic questionnaire, parents were questioned about their status as not being institutionalized.

If either parent cannot read, write, or speak Arabic, the child will not be allowed to participate in the program because these skills are required to comprehend and fill out assessment forms.

3.4. Research Sampling Method and Sample Size

Convenience sampling is a non-probability sampling method to locate representatives of the study sample; simply and quickly. It is a well-known sampling method that is inexpensive, useful, and timesaving (Stratton, 2021). Correspondingly, participants will be recruited from kindergartens, preschools, children's activity centers (e.g., Pallet and Karate), yoga studios, and after-school care centers, depending on parents' availability and participation interest.

The mean and standard deviation of the child sensory profile 2 or preschool activity card sort (the main sensory/participation outcome used in this study) in preschool children with typical development has been reported to be 38.33 (SD 19.78) (Palamar et al. 2017). A sample size calculation identified that a sample of 85 participants was sufficient to estimate the mean score with a 95% confidence interval of ± 5%. To compensate for anticipated dropouts the calculated sample size was increased by 10% resulting in 93 participants.

3.5. Participant Recruitment Procedure

Researchers will recruit potential Palestinian parents of TD children from Bethlehem, Ramallah, and Jenin through institutions that include kindergartens, preschools, children's activity centers, pallets, Karate and musical centers, yoga studios, and after-school care centers. The researcher will ask permission to arrange a meeting or data collection session with parents in these places as an option.

The sample will consist of parents of children from the cities of Bethlehem, Ramallah, and Jenin, including rural areas, urban areas, and camps within the previously mentioned cities. The recruitment process will be organized through conducting personal visits to the previously mentioned centers and distributing electronic and hard copies flyers. The flyers will describe the study's main goal, information, and procedure and will include the contact information of the researcher.

For parents who register by third parties, the invitation letter and participation information sheet will be distributed to them by the third parties, while for parents who contact the researcher as a response to the flyers, the participant information sheet and invitation letter will be sent to them by WhatsApp or email. Both the invitation letter and participant information sheet will be written in comprehensible Arabic language. Two-three days later after providing the PIS and invitation letter, the researcher will contact the parents to assure their will of voluntary participation and check the eligibility checklist (Appendix 1) regarding their children. Subsequently, the aim, procedure, and relevant information of the study will be explained, and principal terms regarding "sensory processing" and "activity participation" will be identified. Next,

parents will be asked if they have any questions to be answered by the researcher. Accordingly, at the same phone call, an appointment will be fixed between the parent/s and researcher to complete the consent form (Appendix 2) and demographic questionnaire, followed by the Child Sensory Profile 2 and the Arabic version of the preschool activity card sort.

Parents will be provided with several options to set a convenient meeting place and time; places include preschools, kindergartens, centers that recruited them, the researcher's office, in addition to Beit Ashams center for self-development. The meeting can be arranged at any mutually suitable time within the determined data collection time frame.

3.6. Research Instruments

3.6.1. Demographic Data Questionnaire

The demographic data questionnaire (Appendix 4) will be completed at the beginning of the meeting; it will consist of questions regarding the child, their family, and social and economic background. The form will also include questions regarding the child's gender, age, the order in the family, the number of people and siblings living with the child in the same household, whether the child was born full-term or not, attending a school, kindergarten, or any other intuitions regularly.

3.6.2. Outcome Measures

Outcome measures will include the Arabic- translated version of the child sensory profile 2-caregiver questionnaire, and the Arabic version of the preschool activity card

sort. These tools will be stated in light of the international classification of functioning, health, and disability (WHO, 2001).

3.6.2.1 Child Sensory Profile 2-Caregiver Questionnaire (CSP2-CQ)

Children's sensory processing patterns which influence their home, school, and community participation are understood by caregivers, teachers, and professionals through sensory profile 2.

The child sensory profile 2-Careviver questionnaire (Attachment 1) is one of the sensory profile 2 assessments, it targets children aged 3 to 14 years old, and has a five-point scale, starting with 1, indication almost never and 5 indicating almost always (Dunn, 2014). Its score is counted through sensory (visual processing, auditory processing, touch processing, oral processing, body position processing, and movement processing) and behavioral fields (conduct, attentional responses, and social-emotional responses). Scores of these two subscales are later used to count

Quadrant scores, following Dunn's four patterns of sensory processing (Dunn, 2014). SP2 takes 15-20 minutes to complete (Dunn, 2014).

In an attempt to investigate the validity of sensory profile 2, it displayed a proper fit with the previously mentioned model of Dunn's four factors (Dean et al., 2016). It demonstrated overall appropriate psychometric properties (Licciardi & Brown, 2021); test-retest reliability was high, as the Intra-class correlation coefficient range was from 0.83-0.97 (Baxter, 2017). Content validity was attained through feedback from the original Sensory Profile and a review by experts. As for construct validity, correlations

between the CSP2-CQ and the original Sensory Profile were mostly moderate to high (0.43 to -0.85) ($p < .01$) (Dunn, 2014).

The latest edition of Winnie Dunn's (2014) Child Sensory Profile 2 (CSP2) has 86 items. This version is divided into multiple subscales that evaluate different facets of children's sensory processing. It includes 14 items in the subscale of sensory seeking, 20 items in the subscale of sensory sensitivity, 21 items in the subscale of sensory avoidance, and 17 items in the subscale of sensory registration. The purpose of these subscales is to assess children's responses to sensory stimuli and how those reactions affect their behavior and day-to-day functioning.

The Arabic version of the child sensory profile 2 has currently been developed. The validation sample has included children from Saudi Arabia, Jordan, and the West Bank. The researcher has obtained the Arabic-translated version, and parents of participants were asked to complete the Arabic-translated version to collect data regarding sensory processing patterns of preschool children in this study.

CSP2-CQ will be attached as Appendix 6.

3.6.2.2 The Arabic Preschool Activity Card Sort (A-PACS)

One of the ways of measuring preschoolers' participation is using the Preschool Activity Card Sort (PACS) which is a tool for measuring participation in children aged 3-6 years old in a semi-structured manner. It is composed of 85 pictures of preschool children achieving different activities, that are classified within seven main categories, including community mobility, social interaction, self-care, education, domestic, and high and low physical demand leisure activities (Berg&Vesser,2006).

The original version of this tool was established in English, it was proven to be valid and reliable, has been subsequently translated and validated in Spanish, (Stoffel & Berg, 2008) and Arabic (Malkawi et al., 2017), and a content validity study was conducted towards its Japanese version (Igarashi et al., 2020).

When administering the PACS, the assessor displays the pictures to parents and requests them to answer whether their child participates in this activity or not. The parents' response towards each picture, by choosing one out of four types of the following responses: yes, my child participates, or yes with adult assistance, or yes with environmental accommodations, or no my child doesn't participate in this activity. Next, parents are asked to justify why the child does not participate in activities, which they answered with "no", in terms of the child, the parent, and the environment. Afterward, parents are requested to determine five activities and rate their significance, frequency, present participation extent, and parent's satisfaction with the child's participation, to set up a treatment goal; the PACS administration process is usually completed within 30-60 minutes (Berg & LaVesser, 2006).

The Arabic version of the PACS is a valid and reliable tool, which can measure the participation of typically developing preschool children within Arab cultures. It contains 95 activities (10 more than the original), distributed in the same seven areas that Berg &Vesser (2006) originally stated (Berg&Vesser, 2006). Moreover, it has displayed the ability to distinguish between children's participation levels in the domains of low-demand leisure, community mobility, and education of the A-PACS giving evidence to its construct validity, as for concurrent validity, it significantly

correlated with some aspects of the Vineland Adaptive Behavior Scales (Sparrow, Cicchetti, & Saulnier, 2016) indicating its concurrent validity, ranging from R=.283(fair) to .692 (excellent) and p was always <.001, total internal consistency for all items of the A-PACS was excellent (α = .859). Moreover, it displayed good test-retest reliability, The ICC (3,195) = .976 showing good stability for the A-PACS (F = 40.976 with 95% confidence interval of .968 to .982, < .001) (Malkawi et al., 2017).

The A-PACS will be appended as Appendix 5.

3.7. Thesis Study Data Collection Procedure

For parents who register by third parties, the invitation letter and participation information sheet will be ready to distribute by the third parties, while for parents who contact the researcher as a response to the flyers. The participant information sheet and invitation letter will be sent by WhatsApp or email. Both the invitation letter and participant information sheet will be written in comprehensible Arabic language. Two-three days later after providing the PIS and invitation letter, parents will be contacted by the researcher to assure their will of voluntary participation and check the eligibility checklist (Appendix 1) regarding their children. Subsequently, the aim, procedure, and relevant information of the study will be explained, and principal terms regarding "sensory processing" and "activity participation" will be identified. Next, parents will be asked if they have any questions to be answered by the researcher. Accordingly, at the same phone call, an appointment will be fixed between the parent/s and researcher to complete the consent form (Appendix 2) and demographic

questionnaire, followed by the Child Sensory Profile 2 and the Arabic version of the preschool activity card sort.

Parents will be provided with several options to set a convenient meeting place and time, places include preschools, kindergartens, centers that recruited them or the researcher's office. The meeting can be arranged at any mutually suitable time within the determined data collection time Frame.

Parents will be offered to have his/her/their transportation cost (If there are any) covered by the research resources. Moreover, when parents or the researcher arrive at the agreed place, parents will be given an introduction regarding the study and all related information and concepts, their questions will be received and answered by the researcher and the consent form will be given to parents to read and sign if all terms have been accepted by them. Then, parents will be asked to complete the questionnaires referred to in Table 1 within a minimum of 45 minutes and a maximum of 95 minutes. Breaks will be considered if needed.

Patient and public involvement and pilot study will be usefully contributing to the data collection administration of the study in a way that makes it smooth, comfortable, rapid, and simple for parent/s.

Table 1 :Research Instruments and anticipated administration time.

Instruments	Anticipated Administration Time
Demographic data questionnaire	10-15 minutes
Child sensory profile 2-Caregiver Questionnaire/translated into Arabic	5-20 minutes
Arabic -Preschool Activity Card Sort	30-60 minutes
Total anticipated administration time 45-95 minutes	

3.8. Research Statistical Considerations

The descriptive analytical method was adopted in analyzing the data of this research. This research was analyzed using the IBM 22 (SPSS) program. The data consisted of quantitative and qualitative data. The non-parametric tests were used to test the hypotheses in this research, namely the Mann-Whitney t-test to test the differences in the variables that it contains only two groups. Despite the data included children with normal development, non-parametric tests were used since they provide more flexibility in addressing data that deviates from parametric assumptions. In particular, non-parametric techniques are helpful when handling ordinal data or skewed data distributions (Pallant, 2020). The decision to utilize non-parametric tests in this study guaranteed the robustness of the hypothesis testing and prevented any mistakes that might result from the assumptions of the parametric tests not being met.

As for the variables that contain more than two groups, the Kruskal–Wallis test was used. As for the descriptive aspect, percentages, and standard deviation were used to describe these variables, and based on them, the pre-school students were classified into three sections in terms of the sensory aspect. Through the normal curve and sensory profile 2 classification system, students were classified into three categories: less than others, just like others, and more than others. As for the activities, they were described using percentages and the students divided them according to age (three years, 4 years, 5 years, 6 years) to find out which age groups were most proficient in each of the activities.

3.9. Research Ethical Considerations

To maintain the rights of research participants and keep scientific integrity, substantial ethical steps will be followed. Starting with contacting the Institutional Review Board committee of the Arab American University-Palestine, to review this proposal for approval before initiating the data collection process; a modification application will be submitted to IRB if the researcher decides and changes, and modifications will be implemented to re-submit the proposal for an IRB in case any modifications were asked. In addition, the IRB of the ministry of education will be obtained if needed. All participants will be free in their choice to take part in the study, without pressure or obligation, they will be able to withdraw from the study without providing any justification and their voluntary decisions will be respected.

A consent form (Appendix 2) will be obtained before performing any step with participants, it will include information about the study's advantages, procedure, confidentiality, and institutional approval. A participant information sheet (Appendix 3) will be provided for the participant to read, and they will be given the chance to ask all the questions desired. Anonymity will be guaranteed; by avoiding collecting any unneeded personal data. Each participant will be given a code that consists of the abbreviation of the name of the measurement tool, and three serial numbers, starting from 0001 and continuing.

The results of the assessment will be communicated to parents transparently and honestly, and needed recommendations and or referrals will be made. In addition, content Plagiarism will be avoided. And the contact of both the researcher and supervisor/s will be included in case parents wanted to communicate with them. Additionally, the supervisor will be consulted in terms of any ethical conflicts.

This study is not likely to result in any harm, the researcher will be a student at the Arab American university occupational therapy master, who is also a licensed occupational therapist registered with the Palestinian occupational therapy association and ministry of health, and ethical performance will be maintained during the research process. Since the data collection process will take a minimum of 45 minutes with each parent, snacks, and breaks will be proposed.

All data will be securely kept in the researcher's clinical office, a drawer will be located specifically for each measurement tool, and a drawer will be located for keeping consent forms and demographic questionnaires. The keys of drawers will be kept with

the researcher only, and electronic data will be saved on the researcher's secured computer, which only the researcher knows the password of. In addition, the input of child sensory profile 2 will be saved on the researcher's account on Pearson. Study-related information will be used only for the sake of research and will be shared with the direct supervisor/s.

3.10. Research Time Plan

The Research tasks will be distributed across a one academic year starting after Spring academic semester, 2023, consisting of an estimation of 32 weeks. However, the estimations stated is flexible and will be adapted to suit the requirements of the researcher and supervisors, along with the course temporal requirements. While the Ethical Approval of the Arab American University Scientific Research Deanship will be obtained during Spring 2022/2023.

3.11. Research Resources

Activities that will be undertaken to answer the research question of this master thesis require financial support to cover different possible costs, such as transportation of the researcher and parents (if needed), printed materials, snacks, and translation costs in addition to the anticipated cost of purchasing the Arabic version of the preschool activity card sort. The Arab American University-Palestine is expected to provide a specific budget as a contribution to the implementation of this thesis. The author will use this resource and cover any additional financial needs personally.

Chapter Four: Results

This chapter contains the analysis of the results obtained from the study, where the data and information collected and analyzed are reviewed and interpreted. The focus will be on the study's conclusions and the recommendations resulting from the analysis, aiding in a better understanding of the results and their practical application. The study's questions are:

- What are the sensory processing patterns among (TD) preschool Palestinian children?
- What is the activity participation levels among (TD) preschool Palestinian children?
- Is there a relationship between sensory processing patterns and activity participation among (TD) preschool Palestinian children?
- Is there a relationship between the sensory processing level, sensory processing patterns of Palestinian preschool-aged children and their level of participation in preschool activities?
- Are there any statistically significant differences in the level of participation of preschool-aged children in preschool activities based on various factors such as their relationship with family members, gender, age, child ordinal family, number of siblings, place of living, governorate of residence, attendance at school or kindergarten, and the financial situation of the family?

Results

This chapter is dedicated to introducing the results of the data analysis obtained from the study. For better follow, the results are introduced in accordance with the questions raised.

89 preschool-aged children constitute the study's sample, with 41.6% males and 53.9% females. 24.7% of the children are 3 years old, 28.1% are 4 years old, 40.4% are 5 years old, and 6.7% are 6 years old. 61.8% of them reside in cities, 15.7% in villages, and 21.3% in camps for refugees. Geographically, the sample represents the West BANK governorates as follows: 1.1% each from Tulkarm, Jerusalem, and Hebron; 6.6% from Ramallah; 11.2% from Jenin; 4.5% from Nablus; 15.7% from Tubas; and 56.2% from Bethlehem.

4.1 Sensory Processing Patterns

Question (1):

The First question of this study is**:** What are the sensory processing patterns among (TD) preschool Palestinian children?

To answer the first question, the child's sensory processing from various aspects is shown in Table 2. The analysis is carried out according to the mean, standard deviation, percentage, and grade and based on the responses of the sample individuals. Originally, the Child sensory profile 2 (Dunn,2014) used five scoring levels: **Much less**, **Less**, **Just like others**, **More**, and **Much more than others**. These five categories were intended to provide a detailed, nuanced view of how frequently children engage in certain sensory behaviors compared to their peers. However, to simplify the analysis and make the results easier to interpret, the researcher decided to merge these five

levels into three broader categories: **Less than others**, **Just like others**, and **More than others**.

- **Less than others**: This category combines both **Much less than others** and **less than others** from the original scale. The rationale behind this merge is that both "much less" and "less" indicate a reduced frequency of engagement in sensory behaviors compared to most children of the same age. The focus of this merged category is to capture any child who exhibits sensory behaviors less frequently than their peers, regardless of the specific degree of difference. By grouping these two levels, the analysis can still highlight children who engage less, without over-complicating the interpretation.
- **More than others**: This category merges **More than others** with **Much more than others**. It reflects children who engage in sensory behaviors or responses more frequently than their typical peers. By combining these two levels, the researcher simplifies the analysis while still capturing the broader distinction of children who display heightened sensory engagement, without the need to differentiate between "slightly more" or "significantly more."

The decision to consolidate the original five levels into three categories ensures that the results are still meaningful, while also reducing complexity for both interpretation and practical application. This approach makes it easier to identify and categorize children's sensory behaviors, especially in larger studies, while still maintaining clinical relevance.

In this section, the researcher organized the results into three main areas: **Quadrants**, **Sensory Section**, and **Behavioral Section**. This structure provides a clearer understanding of how sensory processing patterns in Palestinian preschool children affect their participation in everyday activities.

1. Quadrants

Dunn's model categorizes sensory processing into four quadrants: **Seeking**, **Avoiding**, **Sensitivity**, and **Registration**. The following percentages indicate how children were classified within each quadrant:

- **Seeking**: In this quadrant, 33.7% of children were classified as "Less than others," 49.4% as "Just like others," and 16.9% as "More than others."
- **Avoiding**: For sensory avoiding, 29.2% of children were categorized as "Less than others," 49.4% as "Just like others," and 21.3% as "More than others."
- **Sensitivity**: Sensitivity to stimuli showed that 36% of the children fell into the "Less than others" category, 47.2% into "Just like others," and 16.9% into "More than others."
- **Registration**: For registration behaviors, 40.4% of children were in the "Less than others" category, 43.8% in "Just like others," and 15.7% in "More than others."

2. Sensory Section

The sensory section focuses on how children process different types of sensory input: **Visual**, **Auditory**, **Touch**, **Movement**, **Oral**, and **Body Position**. These results show how children respond to each sensory modality:

- **Visual Processing**: 38.2% of children were categorized as "Less than others," 41.6% as "Just like others," and 20.2% as "More than others."
- **Auditory Processing**: For auditory stimuli, 31.5% of children fell into the "Less than others" category, 55.1% into "Just like others," and 13.5% into "More than others."
- **Touch Processing**: In touch processing, 37.1% of children were classified as "Less than others," 42.7% as "Just like others," and 20.2% as "More than others."
- **Movement Processing**: 19.1% of children showed "Less than others" responses, 57.3% were classified as "Just like others," and 23.6% as "More than others."
- **Oral Sensory Processing**: 30.3% of children were "Less than others," 53.9% "Just like others," and 15.7% were "More than others."
- **Body Position Processing**: For body position stimuli, 42.7% of children were categorized as "Less than others," 46.1% as "Just like others," and 11.2% as "More than others."

3. Behavioral Section

The behavioral section covers children's responses in the following areas: **Conduct**, **Attention Responses**, and **Social-Emotional Responses**. These behaviors are linked to how children process sensory stimuli.

- **Conduct Associated with Sensory Processing**: 31.5% of children were classified as "Less than others," 55.1% as "Just like others," and 13.5% as "More than others."

- **Attention Responses**: For attention-related behaviors, 39.3% of children fell into the "Less than others" category, 44.9% into "Just like others," and 15.7% into "More than others."
- **Social-Emotional Responses**: In social-emotional responses, 39.3% of children were classified as "Less than others," 44.9% as "Just like others," and 15.7% as "More than others."

Table 2 :child's sensory processing

#	The sensory processor	Mean	Standard Deviation	Percentage	Classification
1.	Visual processing	12	7.2	41.6%	Just like others
2.	Audio processing	15.25	8.58	55.1%	Just like others
3.	Movement Processing	13.7	8.28	57.3%	Just like others
4.	Conduct Associated with Sensory Processing	12.97	8.57	55.1%	Just like others
5.	Oral Sensory processing	14.26	10.94	53.9%	Just like others
6.	Attention Responses Associated with Sensory Processing	14	10.26	47.2%	Just like others
7.	Body position processing	7.29	6.66	46.1%	Just like others
8.	Touch processing	12.45	12.7	42.7%	Just like others
9.	Social Emotional Responses Associated with Sensory Processing	18.33	18.56	44.9%	Just like others
10.	Seeking	31.02	18.55	49.4%	Just like others

11.	Avoiding	30.17	16.87	49.4%	Just like others
12.	Sensitivity	25.33	16.27	47.2%	Just like others
13.	Registration	24.39	17.71	43.8%	Just like others
	Overall	17.78	12.4	48.74%	Just like others

During the preschool stage, the child's sensory processing does not show any difference in classification; the majority of the children in the data fall into the 'Just like others' classification. Although children's sensory processing classification is in the same category, the percentages of responses vary across different aspects. The analysis of preschool children's sensory processing shows the highest percentage to be in the movement processing aspect (57.3%). The oral sensory processing aspect comes in second (53.9%). The third place goes to audio processing and conduct associated with sensory processing (55.1%). The lowest aspects are registration, touch processing, and visual processing (43.8%, 42.7%, and 41.6%, respectively).For the purpose of this study, children aged between **3 years and 6.11 years** were included. The inclusion criteria ensure that participants are within the typical preschool age range, capturing crucial stages of sensory processing development. The age categories were revised to match this range for a more precise analysis, with the categories broken down as follows:

- 3 to 3.11 years
- 4 to 4.11 years
- 5 to 5.11 years
- 6 to 6.11 years

This refined categorization aligns with developmental milestones that typically occur at yearly intervals within the preschool years. By grouping children into these monthly age ranges, the study can more accurately assess variations in sensory processing patterns and participation levels at different points in early childhood. The detailed breakdown helps highlight any significant developmental changes that may occur as children approach school age.

Table 3: Sensory Processing Levels and Classifications Across Age Groups in Preschool Children

#	The sensory processor	Classification	3 years		4 years		5 years		6 years		Total	
			N	%	N	%	N	%	N	%	N	%
1.	Visual level	Less Than Others	8	50	6	25	15	44.1	5	33.3	34	38.2
		Just like others	6	37.5	13	54.2	10	29.4	8	53.3	37	41.6
		Much More Than Others	2	12.5	5	20.8	9	26.5	2	13.3	18	20.2
2.	Audio level	Less Than Others	6	37.5	9	37.5	5	14.7	8	53.3	28	31.5
		Just like others	10	62.5	11	45.8	23	67.6	5	33.3	49	55.1
		Much More Than Others	0	0	4	16.7	6	17.6	2	13.3	12	13.5
3.	Movement level	Less Than Others	3	18.8	4	16.7	7	20.6	3	20	17	19.1
		Just like others	11	68.8	15	62.5	17	50	8	53.3	51	57.3

		Much More Than Others	2	12.5	5	20.8	10	29.4	4	26.7	21	23.6
4.	Conduct Associated with Sensory level	Less Than Others	4	25	7	29.2	12	35.3	5	33.3	20	31.5
		Just like others	9	56.3	15	62.5	18	52.9	7	46.7	49	55.1
		Much More Than Others	3	18.8	2	8.3	4	11.8	3	20	12	13.5
5.	Oral Sensory level	Less Than Others	5	31.3	7	29.2	10	29.4	5	33.3	27	30.3
		Just like others	9	56.3	16	66.7	16	47.1	7	46.7	48	53.9
		Much More Than Others	2	12.5	1	4.2	8	23.5	3	20	14	15.7
6.	Attention Responses Associated with Sensory level	Less Than Others	6	37.5	10	41.7	11	32.4	8	53.3	35	39.3
		Just like others	5	31.3	12	50	18	52.9	5	33.3	40	44.9
		Much More Than Others	5	31.3	2	8.3	5	14.7	2	13.3	14	15.7
7.	Body position level	Less Than Others	5	31.3	11	45.8	15	44.1	7	46.7	38	42.7
		Just like others	8	50	11	45.8	14	41.2	8	53.3	41	46.1
		Much More Than Others	3	18.8	2	8.3	5	14.7	0	0	10	11.2
8.	Touch Level	Less Than Others	6	37.5	8	33.3	11	32.4	8	53.3	33	37.1
		Just like others	7	43.8	16	54.2	14	41.2	4	26.7	38	42.7

		Much More Than Others	3	18.8	3	12.5	9	26.5	3	20	18	20.2
9.	Social Emotional Responses Associated with Sensory Level	Less Than Others	6	37.5	10	41.7	11	32.4	8	53.3	35	39.3
		Just like others	5	31.3	12	50	18	52.9	5	33.3	40	44.9
		Much More Than Others	5	31.3	2	8.3	5	14.7	2	13.3	14	15.7
10.	Seeking Level	Less Than Others	6	37.5	8	33.3	9	26.5	7	46.7	30	33.7
		Just like others	7	43.8	14	58.3	18	52.9	5	33.3	44	49.4
		Much More Than Others	3	18.8	2	8.3	7	20.6	3	20	15	16.9
11.	Avoiding Level	Less Than Others	5	31.3	7	29.2	7	20.6	7	46.7	26	29.2
		Just like others	6	37.5	15	62.5	18	52.9	5	33.3	44	49.4
		Much More Than Others	5	31.3	2	8.3	9	26.5	3	20	19	21.3
12.	Sensitivity Level	Less Than Others	6	37.5	9	37.5	9	26.5	8	53.3	32	36
		Just like others	7	43.8	12	50	18	52.9	5	33.3	42	47.2
		Much More Than Others	3	18.8	3	12.5	7	20.6	2	13.3	15	16.9
13.		Less Than Others	5	31.3	13	54.2	11	3.4	7	46.7	36	40.4

Registration Level	Just like others	7	43.8	9	37.5	17	50	6	40	39	43.8
	Much More Than Others	4	25	2	8.3	6	17.6	2	13.3	14	15.7

Generally speaking, in all of the sensory processing domains, 'Just like others' classification has the highest percentage, 'less than others' classification comes in second place, and 'much more than others' classification is the lowest. The percentage of 'less than others' classification ranges from 19.1 % in movement level to 42.2% in body position level. 'Much more than others' classification ranges from 11.2% in body position level to 23.6% in movement level.

The prototypical view on the relation between activity participation levels is to have a positive relationship; in other words, the older a child, the better performance should appear. Although the majority of the children in the data fall into the 'Just like others' classification, the results indicate varied responses according to preschool children's ages. For *'less than others' classification*, 6-year-old children have the highest percentage in 9 sensory processors. However, the next higher percentages' occurrence in 'less than others' classification was for 3-year-old children in 7 sensory processors. In the *'Just like others' classification*, 5-year-old children occupied the highest percentages occurrences in 6 sensory processors followed by 5 instances for 4-year-old children. Moreover, the most frequent age for the highest percentages in *'much more than others' classification* is for 5-year-old children with 8 occurrences while 3-year-old children take over the rest percentages with 5 occurrences. It is obvious now that

the prototypical view for activity participation levels is not true. Next, we are going to a more detailed glance at each sensory processor.

For the *visual level*, the analysis shows that the percentage of participation levels is 50% for 3-year-old preschool children and 44.1% for 5-year-old children who fall into the 'less than others' classification. 4-year-old children showed a better percentage, 25%, in the 'less than others' classification, which is the least percentage among children. Anyway, although 5-year-old children have a high percentage that falls into the 'less than others' classification, the same age has the highest percentage in the 'much more than others' classification, with 26.5%.

The *audio level* analysis shows the same percentage in 'less than others' classification; the percentage of 3-year-old preschool children and 4-year-old preschool children is 37.5%. however, the rest of 3-year-old preschool children (62.5%) fall into the 'Just like others' classification. 5-year-old children percentage is the lowest with 14% and the majority of the children (67.6%) fall into the 'Just like others' classification, further, the same age has the heights percentage (17.6%) in 'much more than others' classification.

The *movement level* has the heights percentage of 'Just like others' classification. 3-year-old preschool children has the highest percentage (68.8%). however, 5-year-old children percentage is the highest in 'less than others' classification (20.6%) and again is the highest in 'much more than others' classification (29.4%)

The conduct associated with Sensory level is the third highest 'just like others' classification. Naturally, the highest percentages for all ages will be in the same

classification area. However, 5-year-old children percentage is the highest in 'less than others' classification (35.3%).

Interestingly, *oral sensory level*, the second highest 'just like others' classification, shows that all ages are close in the 'just like others' classification. Despite that, in 'much more than others' classification, 5-year-old children and 6-year-old children show a high percentage of 23.5% and 20%, respectively, in comparison to 4-year-old children, whose percentage is 4.2% in the same classification.

In *attention responses associated with sensory level*, 6-year-old children occupies the highest percentage in 'less than others' classification (53.3%); 5-year-old children occupies the highest percentage in 'just like others' classification (52.9%), and 3-year-old children occupy the highest percentage in 'much more than others' classification (31.3%).

In *touch level, social emotional responses associated with sensory level, and seeking level,* 6-year-old children occupies the highest percentage in 'less than others' classification (53.3%, 53.3%, and 46.7% respectively). In *touch level* and *seeking level,* 5-year-old children occupy the highest percentage in 'much more than others' classification (26.5% and 20.6% respectively).

Also, 6-year-old children obtained the highest percentages (46.7% and 53.3%) in 'less than others' classification, considering *avoiding level, sensitivity level*. Further, for 'much more than others' classification, 3-year-old children occupy the highest percentage (31.3%) in avoiding level while 5-year-old children occupy the highest percentage (20.6%) in sensitivity level.

4-year-old children occupies the highest percentage in 'less than others' classification (54.2%) in *registration level* (54.2%). For 'much more than others' classification, 3-year-old children occupy the highest percentage (25%), in the same sensory processor. All in all, the introduced results may not be anticipated. Further discussion will be regarded in the next part of the research.

4.2 Activity Participation Levels

Question 2

The second question of this study is about the activity participation levels among (TD) preschool Palestinian children. To answer the raised question, the analysis is carried out in relation to the specific age classification with child's sensory processing. This question is being raised to have a closer more specific look into the differences in participation levels. The results are introduced in table 4.

Table 4: Children's responses to Self-care domain of activities

#	Item	Yes/ No	3 Year		4 Year		5 Year		6 Year		Total	
			N	%	N	%	N	%	N	%	N	%
1.	Caring for hair	Yes	13	81.3	21	87.5	31	91.2	15	100	80	89.9
		No	3	18.58	3	12.5	3	8.8	0	0	9	10.1
2.	Napping	Yes	14	87.5	17	70.8	27	79.4	13	86.7	71	79.8
		No	2	12.5	7	29.2	7	20.6	2	13.3	18	20.2

3.	Brushing Teeth	Yes	15	93.8	24	100	33	97.1	15	100	87	97.8
		No	1	6.3	0	0	1	2.9	0	0	2	2.2
4.	Dressing	Yes	14	87.5	21	87.5	32	94.1	15	100	82	92.1
		No	2	12.5	3	12.5	2	5.9	0	0	7	7.9
5.	Sleeping at night	Yes	16	100	24	100	34	100	15	100	89	100
		No	0	0	0	0	0	0	0	0	0	0
6.	Eating with fork	Yes	13	81.3	22	91.7	32	94.1	14	93.3	81	91
		No	3	18.8	2	8.3	2	5.9	1	6.7	8	9
7.	Eating with spoon	Yes	13	81.3	23	95.8	34	100	15	100	85	95.5
		No	3	18.8	1	4.2	0	0	0	0	4	4.5
8.	Drinking	Yes	16	100	24	100	33	97.1	15	100	88	98.9
		No	0	0	0	0	1	2.9	0	0	1	1.1
9.	Washing oneself	Yes	13	81.3	22	91.7	33	97.1	15	100	83	93.3
		No	3	18.8	2	8.3	1	2.9	0	0	6	6.7
10.	Using the toilet	Yes	16	87.5	23	95.8	33	97.1	15	100	85	95.5
		No	2	12.5	1	4.2	1	2.9	0	0	4	4.5
11.	Putting shoes on	Yes	13	81.3	22	91.7	33	97.1	15	100	93.3	89
		No	3	18.8	2	8.3	1	2.9	0	0	6	6.7
12.	Drinking from straw	Yes	14	87.5	24	100	31	91.2	15	100	84	94.4
		No	2	12.5	0	0	3	8.8	0	0	5	5.6

13.	Eating sandwich	Yes	14	87.5	23	95.8	33	97.1	15	100	85	95.5
		No	2	12.5	1	4.2	1	2.9	0	0	4	4.5
14.	Cleaning nose	Yes	13	81.3	23	95.8	32	94.1	15	100	83	93.3
		No	3	18.8	1	4.2	2	5.9	0	0	6	6.7
15.	Sleeping with parents	Yes	12	75	12	66.7	22	64.7	8	53.3	58	65.2
		No	4	25	8	33.3	12	35.3	7	46.7	31	34.8
16.	Choose clothes	Yes	12	75	19	79.2	32	94.1	15	100	78	87.6
		No	4	25	5	20.8	2	5.9	0	0	11	12.4
17.	Spraying perfume	Yes	13	81.3	24	100	32	94.1	15	100	84	94.4
		No	3	18.8	0	0	2	5.9	0	0	5	5.6

Generally, 'yes' responses are very high considering self-care domain, where 12 items have over 90% 'yes' answers. Based on the analysis, we can distinguish few patterns in addressing the analysis. The first is a *steady upward relation*; that is, the older the preschool child, the higher the percentages of 'yes' answers. This relation dominates the self-care domain in 9 items, namely: items number (1, 4, 7, 9, 10, 11, 13, 14, and 16, also 15, but with inverse relation. Such relation implies that 6-years-old children are performing self-care items in the best way, while 6-years-old children are performing self-care in the least numbers. Moreover, item 5 has a stable solid pattern 100% of 'yes' answers, which is sleeping at night. Item 8 'drinking' almost has stable solid pattern except for one 5-years-old child. Another pattern can be observed in items 3, 12, and 17, where all of ages have a *steady upward relation* except for a certain age, which is

5-years-old child. Napping item has an arbitrary relation, that is, the highest 'yes' answers is for 3-years-old children and the lowest is for 4-years-old children.

Table 5: Childres' responses to community mobility domain of activities

#	Item	Yes/ No	3 Year N	3 Year %	4 Year N	4 Year %	5 Year N	5 Year %	6 Year N	6 Year %	Total N	Total %
1.	Opening a door	Yes	15	93.8	23	95.8	34	100	15	100	87	97.8
		No	1	6.3	1	4.2	0	0	0	0	2	2.2
2.	Getting a hair cut	Yes	8	50	14	58.3	18	52.9	6	40	46	51.7
		No	8	50	10	41.7	16	47.1	9	60	43	48.3
3.	Eating at a restaurant	Yes	15	93.8	22	91.7	31	91.2	15	100	83	93.3
		No	1	6.3	2	8.3	3	8.8	0	0	6	6.7
4.	Using a public restroom	Yes	14	87.5	21	87.5	32	94.1	14	93.3	91	89
		No	2	12.5	3	12.5	2	5.9	1	6.7	8	9
5.	Riding in car	Yes	15	93.8	24	100	32	94.1	14	93.3	85	95.5
		No	1	6.3	0	0	2	5.9	1	6.7	4	4.5
6.	Visiting the doctor	Yes	13	81.3	23	95.8	32	94.1	12	80	80	89.9
		No	3	18.8	1	4.2	2	5.9	3	20	9	10.1
7.	Waking on stairs	Yes	16	100	23	95.8	34	100	15	100	88	98.9
		No	0	0	1	4.2	0	0	0	0	1	1.1

8.	Getting in / out of car	Yes	15	93.8	23	95.8	34	100	14	93.3	86	96.6
		No	1	6.3	1	4.2	0	0	1	6.7	3	3.4
9.	Grocery shopping	Yes	13	81.3	19	79.2	33	97.1	15	100	80	89.9
		No	3	18.8	5	20.8	1	2.9	0	0	9	10.1
10.	Traveling	Yes	10	62.5	15	62.5	25	73.5	11	73.3	61	68.5
		No	6	37.5	9	37.5	9	26.5	4	26.7	28	31.5
11.	Riding the bus	Yes	9	56.3	20	83.3	30	88.2	13	86.7	72	80.9
		No	7	43.8	4	16.7	4	11.8	2	13.3	17	19.1
12.	Visiting dentist	Yes	10	62.5	16	66.7	29	85.3	13	86.7	68	76.4
		No	6	37.5	8	33.3	5	14.7	2	13.3	21	23.6
13.	Attending religious services	Yes	12	75	15	62.5	26	76.5	13	86.7	66	74.2
		No	4	25	9	37.5	8	23.5	2	13.3	23	25.8
14.	walking across the street	Yes	12	5	20	83.3	32	94.1	15	100	79	88.8
		No	4	25	4	16.7	1	5.9	0	0	10	11.2
15.	Going to amusement park	Yes	12	75	18	75	32	94.1	14	93.3	76	85.4
		No	4	25	6	25	2	5.9	1	6.7	13	14.6
16.	Going to supermarket	Yes	14	87.5	19	79.2	32	94.1	15	100	80	89.9
		No	2	12.5	5	20.8	2	5.9	0	0	9	10.1

The percentages in the community mobility domain range from 51.7% for getting a hair cut to 98.9% for walking the stairs. Moreover, attending religious services had the second-lowest percentage with 74.2%, and the third-lowest percentage was visiting a

dentist with 76.4%. 7 items are between 80% and 90%, while the rest get over 90%. From another point of view, 8 items show the lowest percentage of 'yes' answers to be for 3-year-old children; three items, 9, 13, and 16, show that only 4-year-old children have less percentages; and the lowest percentages for items 2, 5, and 6 are in 6-year-old children.

Table 6: Childres' responses to high demand leisure domain of activities

#	Item	Yes/ No	3 Years		4 Years		5 Years		6 Years		Total	
			N	%	N	%	N	%	N	%	N	%
1.	Riding bike	Yes	7	43.8	16	66.7	23	67.6	13	86.7	59	66.3
		No	9	56.3	8	33.3	11	32.4	2	13.3	30	33.7
2.	Riding scooter	Yes	9	56.3	16	66.7	28	82.4	13	86.7	66	74.2
		No	7	43.8	8	33.3	6	17.6	2	13.3	23	25.8
3.	Running	Yes	14	87.5	24	100	33	97.1	15	100	86	96.6
		No	2	12.5	0	0	1	2.9	0	0	3	3.4
4.	Climbing	Yes	11	68.8	22	91.7	30	88.2	15	100	78	87.6
		No	5	31.3	2	8.3	4	11.8	0	0	11	12.4
5.	Kicking ball	Yes	15	93.8	23	95.8	34	100	15	100	87	97.8
		No	1	6.3	1	4.2	0	0	0	0	2	2.2
6.	Throwing ball	Yes	15	93.8	24	100	34	100	15	100	88	98.9
		No	1	6.3	0	0	0	0	0	0	1	1.1

7.	Playing in playground	Yes	13	86.7	20	83.3	34	100	15	100	82	93.2
		No	2	13.3	4	16.7	0	0	0	0	6	6.8
8.	Playing with pet	Yes	12	75	22	91.7	28	82.4	14	93.3	76	85.4
		No	4	25	2	8.3	6	17.6	1	6.7	13	14.6
9.	Playing with water during bath	Yes	15	93.8	24	100	33	97.1	15	100	87	97.8
		No	1	6.3	0	0	1	2.9	0	0	2	2.2
10.	Dancing	Yes	15	93.8	24	100	33	97.1	15	100	87	97.8
		No	1	6.3	0	0	1	2.9	0	0	2	2.2
11.	Discovering in the wild	Yes	11	68.8	21	87.5	29	85.3	11	73.3	72	80.9
		No	5	31.3	3	12.5	5	14.7	4	26.7	17	19.1

High-demand leisure has 11 items; the lowest is riding a bike with 66.3%, the next is riding a scooter with 74.2%, 3 items from 80% to 90%, and 6 items above 90%. The domain has some interesting results. The first is related to 3-year-old children's percentages of 'yes' responses; 10 items show that 3-year-old children have the lowest percentage of responses. The second result related to the 100% occurrences: 6-year-old children have 8 occurrences of 100% 'yes' responses, 4-year-old children have 4 occurrences, and 5-year-old children have 3.

Next, table 7 presents the percentages of those who answered yes and no for the "Low Demand Leisure" domain of activities.

Table 7: Childres' responses to low demand leisure domain of activities

#	Item	Yes/ No	3 Years N	3 Years %	4 Years N	4 Years %	5 Years N	5 Years %	6 Years N	6 Years %	Total N	Total %
1.	Playing with a play dough	Yes	15	93.8	24	100	33	97.1	15	100	87	97.8
		No	1	6.3	0	0	1	2.9	0	0	2	2.2
2.	Building with blocks	Yes	15	93.8	23	95.8	34	100	15	100	87	97.8
		No	1	6.3	1	4.2	0	0	0	0	2	2.2
3.	Playing alone	Yes	15	93.8	22	91.7	32	94.1	15	100	84	94.4
		No	1	6.3	2	8.3	2	5.9	0	0	5	5.6
4.	Playing on computer/play station	Yes	9	56.3	15	62.5	28	82.4	14	93.3	66	74.2
		No	7	43.8	9	37.5	6	17.6	1	6.7	23	25.8
5.	Cutting	Yes	8	50	15	62.5	26	76.5	13	86.7	62	69.7
		No	8	50	9	37.5	8	23.5	2	13.3	27	30.3
6.	Doing puzzles	Yes	9	56.3	21	87.5	31	91.2	12	80	73	82
		No	7	43.8	3	12.5	3	8.8	3	20	16	18
7.	Swinging	Yes	15	93.8	22	91.7	33	97.1	15	100	85	95.5
		No	1	6.3	2	8.3	1	2.9	0	0	4	4.5
8.	Watching TV	Yes	14	87.5	23	95.8	33	97.1	15	100	85	95.5
		No	2	12.5	1	4.2	1	2.9	0	0	4	4.5
9.	Listening to music	Yes	13	81.3	21	87.5	33	97.1	15	100	82	92.1
		No	3	18.8	3	12.5	1	2.9	0	0	7	7.9

10.	Coloring/ drawing	Yes	12	75	23	95.8	34	100	15	100	84	94.4
		No	4	25	1	4.2	0	0	0	0	5	5.6
11.	Playing pretend	Yes	12	75	22	91.7	28	82.4	14	93.3	76	85.4
		No	4	25	2	8.3	6	17.6	1	6.7	13	14.6
12.	Cracking games or toys and removing things	Yes	15	93.8	20	83.3	30	88.2	12	80	77	86.5
		No	1	6.3	4	16.7	4	11.8	3	20	12	13.5
13.	Blowing balloons	Yes	9	56.3	19	79.2	33	97.1	15	100	76	85.4
		No	7	43.8	5	20.8	1	2.9	0	0	13	14.6
14.	Collecting cards	Yes	15	93.8	23	95.8	33	97.1	15	100	86	96.6
		No	1	6.3	1	4.2	1	2.9	0	0	3	3.4
15.	operating equipment (CD player, computer, TV)	Yes	8	50	17	70.8	30	88.2	12	86.7	98	76.4
		No	8	50	7	29.2	4	11.8	2	13.3	21	23.6
16.	Playing with sand	Yes	14	87.5	23	95.8	33	97.1	15	100	85	95.5
		No	2	12.5	1	4.2	1	2.9	0	0	4	4.5
17.	Carry objects	Yes	11	68.8	23	95.8	33	97.1	15	100	82	92.1
		No	5	31.3	1	4.2	1	2.9	0	0	7	7.9

In low demand leisure domain of activities, out pf 17 items, 11 items have *steady upward relation* where the 6-year-old children have the highest 'yes' answers percentage and 3-year-old children have the lowest. Also, 11 items have 100% 'yes' responses for 6-year-old children. Moreover, the analysis shows a high positive

responses percentage: 10 items have over 90%, 4 items from 80% to 90%, 2 items from 70% to 80%, and one item below 70%.

In table 8, the percentage of those who answered yes and no in correlation to children's ages for the social domain of activities is shown.

Table 8: Childres' responses to social domain of activities

#	Item	Yes/ No	3 Years		4 Years		5 Years		6 Years		Total	
			N	%	N	%	N	%	N	%	N	%
1.	Rough housing	Yes	10	62.5	14	58.3	25	73.5	10	66.7	59	66.3
		No	6	37.5	10	41.7	9	26.5	5	33.3	30	33.7
2.	Taking turns	Yes	13	81.3	21	87.5	30	88.2	15	100	79	88.8
		No	3	18.8	3	12.5	4	11.8	0	0	10	11.2
3.	Looking at books	Yes	10	62.5	14	85.3	25	73.5	10	66.7	59	66.3
		No	6	37.5	10	41.7	9	26.5	5	33.3	30	33.7
4.	Hugging	Yes	15	93.8	23	95.8	33	97.1	15	100	86	96.6
		No	1	6.3	1	4.2	1	2.9	0	0	3	3.4
5.	Playing team sport	Yes	13	81.3	22	91.7	33	97.1	15	100	83	93.3
		No	3	18.8	2	8.3	1	2.9	0	0	6	6.7
6.	Going for walks	Yes	15	93.8	22	91.7	34	100	15	100	86	96.6
		No	1	6.3	2	8.3	0	0	0	0	3	3.4

7.	Talking on telephone	Yes	14	87.5	23	95.8	33	97.1	15	100	85	95.5
		No	2	12.5	1	4.2	1	2.9	0	0	4	4.5
8.	Attending birthday parties	Yes	14	87.5	20	83.3	34	100	14	93.3	82	92.1
		No	2	12.5	4	16.7	0	0	1	6.7	7	7.9
9.	Talking with friends and family	Yes	16	100	19	79.2	34	100	15	100	84	94.4
		No	0	0	5	20.8	0	0	0	0	5	5.6
10.	Playing group games	Yes	16	100	22	91.7	33	97.1	15	100	86	96.6
		No	0	0	2	8.3	1	2.9	0	0	3	3.4
11.	Visiting	Yes	15	93.8	22	91.7	33	97.1	15	100	85	95.5
		No	1	6.3	2	8.3	1	2.9	0	0	4	4.5
12.	Gathering with family	Yes	16	100	21	87.5	33	97.1	15	100	85	95.5
		No	0	0	3	12.5	1	2.9	0	0	4	4.5
13.	Telling jokes	Yes	9	56.3	15	62.5	25	73.5	13	86.7	62	69.7
		No	7	43.8	9	37.5	9	26.5	2	13.3	27	30.3
14.	Going on family trips	Yes	15	93.8	22	91.7	34	100	15	100	86	96.6
		No	1	6.3	2	8.3	0	0	0	0	3	3.4
15.	Opening gifts	Yes	15	93.8	23	95.8	34	100	15	100	87	97.8
		No	1	6.3	1	4.2	0	0	0	0	2	2.2

According to the table 8, social domain of activities has a high response percentage; out of 15 items, 11 items are over 90%, 1 item has 88.8%, and 3 items fall in the 60% to 70% area. Moreover, six items have *a steady upward relation*, where the 6-year-old

children have the highest 'yes' answer percentage and the 3-year-old children have the lowest. The analysis shows 10 instances of 1005 positive responses for 6-year-old children, 5 occurrences for 5-year-old children, and 3 occurrences for 3-year-old children.

The next table shows the percentage of children who answered yes or no for the Domestic domain of activities.

Table 9: Childres' responses to domestic domain of activities

#	Item	Yes/ No	3 Years		4 Years		5 Years		6 Years		Total	
			N	%	N	%	N	%	N	%	N	%
1.	Cooking	Yes	5	31.3	18	75	21	61.8	10	66.7	54	60.7
		No	11	68.8	6	25	13	38.2	5	33.3	35	39.3
2.	Sweeping	Yes	8	50	20	83.3	25	73.5	13	86.7	66	74.2
		No	8	50	4	16.7	9	26.5	2	13.3	23	25.8
3.	Emptying trash	Yes	8	50	17	70.8	23	67.6	12	80	60	67.4
		No	8	50	7	29.2	11	32.4	3	20	29	32.6
4.	Working in the yard	Yes	10	62.5	19	79.2	21	61.8	12	80	62	69.7
		No	6	37.5	5	20.8	13	38.2	3	20	27	30.3
5.	Caring for pet	Yes	11	68.8	18	75	25	73.5	12	80	66	74.2
		No	5	31.3	6	25	9	26.5	3	20	23	25.8

6.	Cleaning	Yes	9	56.3	18	75	29	85.3	13	86.7	69	77.5
		No	7	43.7	6	25	5	14.7	2	13.3	20	22.5
7.	Setting dining table	Yes	9	56.3	18	75	30	88.2	14	93.3	71	79.8
		No	7	43.8	6	25	4	11.8	1	6.7	18	20.2
8.	Arranging room/making bed	Yes	13	81.3	19	79.2	30	88.2	15	100	77	86.5
		No	3	18.8	5	20.8	4	11.8	0	0	12	13.5

In contrast to previous tables of analysis, the domestic domain has the lowest percentages of 'yes' answers; the analysis shows no over 90% items, 1 item with 86.5%, 4 items with 70% to 80%, and 3 occurrences of 60% to 70%. In 8 items, 3-year-old children have the lowest percentages in 6. Domestic activities have the lowest positive responses so far.

Next, table 10 shows children's responses for the education domain of activities.

Table 10: Childres' responses to Education domain

#	Item	Yes/	3 Years		4 Years		5 Years		6 Years		Total	
		No	N	%	N	%	N	%	N	%	N	%
1.	Prayer	Yes	11	68.8	20	83.3	31	91.2	12	80	74	83.1
		No	5	31.3	4	16.7	3	8.8	3	20	15	16.9
2.	Taking group lessons	Yes	8	50	17	70.8	27	79.4	13	86.7	65	73
		No	8	50	7	29.2	7	20.6	2	13.3	24	27

3.	Waiting in line	Yes	12	75	20	83.3	32	94.1	14	93.3	78	87.6
		No	4	25	4	16.7	2	5.9	1	6.7	11	12.4
4.	Requesting help	Yes	14	87.5	22	91.7	33	97.1	15	100	84	94.4
		No	2	12.5	2	8.3	1	2.9	0	0	5	5.6
5.	Problem solving	Yes	13	81.3	19	79.2	29	85.3	15	100	76	85.4
		No	3	18.8	5	20.8	5	14.7	0	0	13	14.6
6.	Writing letters	Yes	7	43.8	17	70.8	30	88.2	15	100	69	77.5
		No	9	56.3	7	29.2	4	11.8	0	0	20	22.5
7.	Listening in group	Yes	10	62.5	22	91.7	30	88.2	15	100	77	86.5
		No	6	37.5	2	8.3	4	11.8	0	0	12	13.5
8.	Attending daycare / preschool	Yes	11	68.8	20	83.3	33	97.1	14	93.3	78	87.6
		No	5	31.3	4	16.7	1	2.9	1	6.7	11	12.4
9.	Following directions	Yes	13	81.3	20	83.3	33	97.1	13	86.7	79	88.8
		No	3	18.8	4	16.7	1	2.9	2	13.3	10	11.2
10.	Sitting in chair	Yes	12	75	21	87.5	33	97.1	15	100	81	91
		No	4	25	3	12.5	1	2.9	0	0	8	9
11.	Remembering anthem and presentation	Yes	10	62.5	19	79.16	27	79.41	11	73.33	67	75.28
		No	4	37.5	5	20.84	7	20.59	4	26.67	22	24.72

Education domain activities have 11 items; four items have *a steady upward relation*. The analysis shows 2 items to be over 90%, 6 items are located in 80% to 90% area, and 3 items are in 70% to 80% area. Moreover, 5 instances of 100% positive responses

are located for 6-year-old children. All of the lowest percentages of positive responses are located in 3-year-old children, except for item 5.

4.3 Relationship between sensory processing and Activity participation

Question 3

The third question of this study is: Is there a relationship between the sensory processing level, sensory processing patterns of Palestinian preschool-aged children and their level of participation in preschool activities?

To address the fourth question of this study, the Spearman correlation test was employed to assess the level of relationship between the sensory processing level of Palestinian preschool-aged children and their level of participation in preschool activities in table 11.

Table 11: The result of the Spearman correlation test.

Correlations

			Selfcare	Community mobility	High Demand	Low Demand	Domestic	Education	Social
Spearman's rho	Visual processing	Correlation Coefficient	179	.009	-.042	.006	.113	.129	.082
		Sig. (2-tailed)	0.094	.934	.698	.954	.290	.227	.445
		N	89	89	89	89	89	89	89
	Audio processing	Correlation Coefficient	.185	.113	.112	.135	.135	.198	.007
		Sig. (2-tailed)	0.083	0.292	0.297	0.207	0.206	0.062	0.950
		N	89	89	89	89	89	89	89
	Touch processing	Correlation Coefficient	.021	-.101	-.128	-.211	-.066	-.180	-.061
		Sig. (2-tailed)	0.847	0.346	0.232	0.047	0.539	0.091	0.572
		N	89	89	89	89	89	89	89

Spearman's rho	Movement Processing	Correlation Coefficient	0.148	-0.068	-0.070	-0.070	-0.008	-0.023	0.001
		Sig. (2-tailed)	0.166	0.529	0.513	0.516	0.937	0.828	0.991
		N	89	89	89	89	89	89	89
	Body position processing	Correlation Coefficient	-0.024	-0.009	-0.165	-0.195	-0.048	-0.191	-0.050
		Sig. (2-tailed)	0.822	0.930	0.123	0.067	0.653	0.072	0.645
		N	89	89	89	89	89	89	89
	Oral Sensory processing	Correlation Coefficient	0.089	0.142	0.077	-0.028	0.085	-0.042	0.093
		Sig. (2-tailed)	0.408	0.183	0.471	0.794	0.428	0.697	0.388
		N	89	89	89	89	89	89	89
	Conduct Associated with Sensory Processing	Correlation Coefficient	0.067	-0.098	-0.002	-0.059	0.049	0.021	0.000
		Sig. (2-tailed)	0.531	0.359	0.984	0.584	0.651	0.845	0.998
		N	89	89	89	89	89	89	89
	Social Emotional Responses Associated with Sensory Processing	Correlation Coefficient	0.070	-0.070	-0.106	-0.122	-0.026	-0.029	-0.020
		Sig. (2-tailed)	0.512	0.515	0.321	0.255	0.809	0.789	0.853
		N	89	89	89	89	89	89	89

Spearman's rho	Attention Responses Associated with Sensory Processing	Correlation Coefficient	0.007	-0.111	-0.071	-0.135	0.053	-0.065	-0.062
		Sig. (2-tailed)	0.948	0.300	0.509	0.207	0.619	0.543	0.564
		N	89	89	89	89	89	89	89
	Seeking	Correlation Coefficient	0.126	-0.001	0.011	-0.071	0.089	0.027	0.110
		Sig. (2-tailed)	0.239	0.990	0.915	0.507	0.407	0.799	0.306
		N	89	89	89	89	89	89	89
	Avoiding	Correlation Coefficient	0.108	-0.033	-0.053	-0.023	0.093	0.049	-0.001
		Sig. (2-tailed)	0.315	0.755	0.622	0.832	0.387	0.646	0.995
		N	89	89	89	89	89	89	89
	Sensitivity	Correlation Coefficient	0.026	-0.045	-0.064	-0.087	-0.010	-0.068	-0.054
		Sig. (2-tailed)	0.811	0.676	0.554	0.415	0.927	0.529	0.618
		N	89	89	89	89	89	89	89
	Registration	Correlation Coefficient	0.037	-0.066	-0.128	-0.156	-0.020	-0.146	-0.021
		Sig. (2-tailed)	0.732	0.538	0.232	0.143	0.853	0.172	0.847
		N	89	89	89	89	89	89	89

The Spearman correlation test was conducted to explore the relationship between the sensory processing levels, sensory processing patterns, and the levels of participation in preschool among Palestinian preschool-aged children. The results revealed weak correlations, however, only one correlation is statistically significant, > 0.05, between low demand leisure activities and touch processing (Sig = .047).

4.4 Statistical Analysis of Participation Levels in Preschool Activities Based on Demographic Factors

Question 4

Are there any statistically significant differences in the level of participation of preschool-aged children in preschool activities based on various factors such as their relationship with family members, gender, age, child ordinal family, number of siblings, place of living, governorate of residence, attendance at school or kindergarten, and the financial situation of the family?

This research question seeks to determine whether there are statistically significant differences in the level of participation of preschool-aged children in preschool activities based on various factors, including their relationship with family members, gender, age, birth order, number of siblings, place of living, governorate of residence, attendance at school or kindergarten, and the family's financial situation. By analyzing these factors, the study aims to uncover patterns and disparities in participation, providing insights into how these demographic and contextual variables may influence

a child's engagement in preschool activities and informing the development of targeted interventions to support diverse needs.

Table 12: Gender variable

	Conduct Associated with Sensory Processing	Visual processing	Audio processing	Touch processing	Movement Processing	Body position processing	Oral Sensory processing
Mann-Whitney U	733.000	731.500	837.000	714.000	836.000	891.500	854.000
Wilcoxon W	1958.000	1956.500	2062.000	1939.000	2061.000	2116.500	2079.000
Z	-2.040	-2.053	-1.181	-2.197	-1.190	-.734	-1.041
Asymp. Sig. (2-tailed)	0.041	0.040	0.238	0.028	0.234	0.463	0.298

	Social Emotional Responses Associated with Sensory Processing	Attention Responses Associated with Sensory Processing	Seeking	Avoiding	Sensitivity	Registration
Mann-Whitney U	807.500	796.000	765.000	793.500	762.500	763.000
Wilcoxon W	2032.500	2021.000	1990.000	2018.500	1987.500	1988.000
Z	-1.424	-1.519	-1.774	-1.539	-1.795	-1.791
Asymp. Sig. (2-tailed)	0.154	0.129	0.076	0.124	0.073	0.073

The question is addressed according to non-parametric Mann-Whitney Test and Kruskal-Wallis Test results. The statistical significance of the differences in the sensory processing and level of participation of preschool-aged children in preschool sensory processing and activities is interpreted. First, we look at sensory processing statistically significant differences with various factors.

For the gender variable, male – female variable, table 12, the Mann-Whitney test result shows that there are statistically significant differences between males and females in visual processing (Sig =.040) and in touch processing (Sig =.028).

For born before week 37 variable, as table 13 shows, Mann-Whitney test suggest that there are no statistically significant differences in levels of participation levels.

Table 13: Born before week 37 variable

	Visual processing	Audio processing	Touch processing	Movement Processing	Body position processing	Oral Sensory processing	Conduct Associated with Sensory Processing
Mann-Whitney U	627.500	528.000	657.500	635.000	657.500	630.500	625.000
Wilcoxon W	817.500	718.000	847.500	825.000	847.500	820.500	815.000
Z	-0.376	-1.374	-0.075	-0.301	-0.076	-0.346	-0.401
Asymp. Sig. (2-tailed)	0.707	0.170	0.940	0.763	0.940	0.729	0.688

	Social Emotional Responses Associated with	Attention Responses Associated with Sensory Processing	Seeking	Avoiding	Sensitivity	Registration
Mann-Whitney U	643.000	659.500	539.000	614.000	656.000	655.000
Wilcoxon W	833.000	849.500	729.000	804.000	846.000	3140.000
Z	-0.220	-0.055	-1.262	-0.511	-0.090	-0.100
Asymp. Sig. (2-tailed)	0.826	0.956	0.207	0.609	0.928	0.920

Mann-Whitney test suggests that there are some statistically significant differences in participation grounded on the child's relationship with family members. People who live in family are categorized into '5 or less' and 'more than 5'. Movement processing has a statistically significant difference with relationship with family members variable (Sig = 0.28). Also, Oral Sensory processing has a statistically significant difference with (Sig = .043). In addition, conduct associated with sensory processing and registration have statistically significant differences (Sig = .015) and (Sig = .026) respectively.

Table 14: People living in Family now variable

	Visual processing	Audio processing	Touch processing	Movement Processing	Body position processing	Oral Sensory processing	Conduct Associated with Sensory Processing
Mann-Whitney U	564.500	539.500	578.000	487.000	558.500	504.500	462.000
Wilcoxon W	2910.500	2885.500	2924.000	2833.000	2904.500	2850.500	2808.000
Z	-1.447	-1.688	-1.316	-2.197	-1.512	-2.027	-2.438
Asymp. Sig. (2-tailed)	0.148	0.091	0.188	0.028	0.131	0.043	0.015

	Social Emotional Responses Associated with Sensory Processing	Attention Responses Associated with Sensory Processing	Seeking	Avoiding	Sensitivity	Registration
Mann Whitney U	581.500	526.500	558.000	560.000	526.000	484.000
Wilcoxon W	2927.500	2872.500	2904.000	2906.000	2872.000	2830.000
Z	-1.281	-1.814	-1.508	-1.489	-1.818	-2.223
Asymp. Sig. (2-tailed)	0.200	0.070	0.132	0.137	0.069	0.026

For age category variable, the Kruskal-Wallis test suggest that there are no statistically significant differences in levels of participation levels. That is, the child age, 3, 4, 5, or 6, does not impact participation levels.

Table 15: Age category variable

	Visual processing	Audio processing	Touch processing	Movement Processing	Body position processing	Oral Sensory processing	Conduct Associated with Sensory Processing
Kruskal-Wallis H	3.336	6.839	3.020	0.474	3.124	3.276	1.074
Df	3	3	3	3	3	3	3
Asymp. Sig.	0.343	0.077	0.389	0.925	0.373	0.351	0.783

	Social Emotional Responses Associated with Sensory Processing	Attention Responses Associated with Sensory Processing	Seeking	Avoiding	Sensitivity	Registration
Kruskal-Wallis H	1.275	0.211	0.619	2.777	2.054	1.630
Df	3	3	3	3	3	3
Asymp. Sig.	0.735	0.976	0.892	0.427	0.561	0.653

The analysis, table 16, shows that there are some statistically significant differences in participation grounded on the child's relationship with place of living. Body position processing has statistically significant differences (Sig = .001), also, oral sensory processing (Sig = .006), conduct associated with sensory processing (Sig = .034). In addition, social emotional responses associated with sensory processing, attention responses associated with sensory processing, seeking, avoiding, sensitivity, registration have statistically significant differences (Sig = .020), (Sig = .001), (Sig = .011), (Sig = .016), (Sig = .004), (Sig = .001) respectively. The place of living included three main areas *city, village, or refugee camp*. It is obvious that place of living variable has a significant relation with children's participation levels.

Table 16: Place of living variable

	Visual processing	Audio processing	Touch processing	Movement Processing	Body position processing	Oral Sensory processing	Conduct Associated with Sensory Processing
Kruskal-Wallis H	3.731	4.356	8.674	11.112	13.409	10.298	6.782
Df	2	2	2	2	2	2	2
Asymp. Sig.	0.155	0.113	0.013	0.004	0.001	0.006	0.034

	Social Emotional Responses Associated with Sensory Processing	Attention Responses Associated with Sensory Processing	Seeking	Avoiding	Sensitivity	Registration
Kruskal-Wallis H	7.821	13.765	9.105	8.260	10.931	13.677
Df	2	2	2	2	2	2
Asymp. Sig.	0.020	0.001	0.011	0.016	0.004	0.001

Child goes to school or kindergarten; the variable includes going to school, kindergarten, or none. The variable shows one statistically significant difference with

body position processing (Sig =.024). That is, body position processing has differences due to a child's attendance at school, kindergarten, or none of them.

Table 17: Child goes to school or kindergarten variable

	Visual processing	Audio processing	Touch processing	Movement Processing	Body position processing	Oral Sensory processing	Conduct Associated with Sensory Processing
Kruskal-Wallis H	.220	2.292	5.315	.189	7.438	6.54	4.571
Df	2	2	2	2	2	2	2
Asymp. Sig.	0.896	0.318	0.070	0.910	0.024	0.032	0.102

	Social Emotional Responses Associated with Sensory Processing	Attention Responses Associated with Sensory Processing	Seeking	Avoiding	Sensitivity	Registration
Kruskal-Wallis H	3.452	7.142	1.316	1.027	3.966	7.377
Df	2	2	2	2	2	2
Asymp. Sig.	0.178	0.028	0.518	0.599	0.138	0.025

For Financial Situation variable, the Kruskal-Wallis test shows that orally sensory processing has a statistically significant relation (Sig = .012), which includes that

different financial situations, god, average, or low, would impact the oral sensory processing for preschool children.

Table 18: Financial Situation

	Visual processing	Audio processing	Touch processing	Movement Processing	Body position processing	Oral Sensory processing	Conduct Associated with Sensory Processing
Kruskal-Wallis H	1.205	1.811	.965	2.203	0.933	8.797	1.215
Df	2	2	2	2	2	2	2
Asymp. Sig.	0.547	0.404	0.617	0.332	0.627	0.012	0.545

	Social Emotional Responses Associated with Sensory Processing	Attention Responses Associated with Sensory Processing	Seeking	Avoiding	Sensitivity	Registration
Kruskal-Wallis H	1.233	1.649	4.725	0.917	2.607	0.942
Df	2	2	2	2	2	2
Asymp. Sig.	0.540	0.438	0.094	0.632	0.272	0.624

Next, activities participation levels are investigated to interpret any statistically significant relations with the various factors.

First variable is sex, which include male and female categories. Mann-Whitney test shows no statistically significant relations between sex variable and participation level for preschool children. In other words, a child being a male or female does not affect his\her participation level.

Table 19: Gender variable

	Selfcare	Community mobility	High Demand Leisure	Low Demand Leisure	Domestic	Education	Social
Mann-Whitney U	972.500	963.000	888.000	966.500	913.500	847.500	871.000
Wilcoxon W	2197.500	1783.000	2113.000	1786.500	1733.500	1667.500	2096.000
Z	-0.065	-0.143	-0.813	-0.115	-0.573	-1.187	-0.955
Asymp. Sig. (2-tailed)	0.948	0.886	0.416	0.908	0.567	0.235	0.339

Also, in born before week 37 variable, table 20, Mann-Whitney test shows no statistically significant relations with participation level for preschool children. That is, the child being born before week 37 does not affect the child’s participation.

Table 20: Born before week 37

	Selfcare	Community mobility	High Demand Leisure	Low Demand Leisure	Domestic	Education	Social
Mann-Whitney U	650.500	588.000	639.000	643.000	592.000	652.000	538.500
Wilcoxon W	840.500	3073.000	829.000	833.000	3077.000	3137.000	3023.500
Z	-0.153	-0.785	-0.279	-0.228	-0.763	-0.141	-1.346
Asymp. Sig. (2-tailed)	0.878	0.432	0.780	0.819	0.445	0.888	0.178

Further, People living in Family now variable does not show any statistically significant relations with participation level for preschool children, table 20. Mann-Whitney test suggests that having 5 or less family members or more than 5 members does not affect ant participation level.

Table 21: People living in Family

	Selfcare	Community mobility	High Demand Leisure	Low Demand Leisure	Domestic	Education	Social
Mann-Whitney U	689.000	629.000	701.000	643.000	649.500	618.500	641.000
Wilcoxon W	920.000	2975.000	3047.000	874.000	880.500	849.500	2987.000
Z	-0.255	-0.837	-0.135	-0.711	-0.651	-1.003	-0.750
Asymp. Sig. (2-tailed)	0.799	0.403	0.893	0.477	0.515	0.316	0.454

However, age categories show two statistically significant relations between age and low demand leisure (Sig = .017) and education (Sig = 0.011). in other words, Kruskal-Wallis test shows that children with different ages, 3, 4, 5, or 6, will have different participation levels in low demand leisure and education.

Table 22: Age categories

	Selfcare	Community mobility	High Demand Leisure	Low Demand Leisure	Domestic	Education	Social
Kruskal-Wallis H	4.337	5.213	6.640	10.220	5.006	11.118	5.225
Df	3	3	3	3	3	3	3
Asymp. Sig.	0.227	0.157	0.084	0.017	0.171	0.011	0.156

However, Kruskal Wallis Test shows that there are no statistically significant relations with participation level for preschool children considering place of living, village, city, or refugee camp.

Table 23: Place of living

	Selfcare	Community mobility	High Demand Leisure	Low Demand Leisure	Domestic	Education	Social
Kruskal-Wallis H	5.091	0.290	0.043	1.039	0.111	2.817	3.282
Df	2	2	2	2	2	2	2
Asymp. Sig.	0.078	0.865	0.979	0.595	0.946	0.244	0.194

a. Kruskal Wallis Test

b. Grouping Variable: Place of Living

According to the Kruskal-Wallis test, table 24, a child goes to school or kindergarten has one statistically significant relationship with education (Sig = .014), which implies a different participation in education.

Table 24: Child goes to school or kindergarten variable

	Self-care	Community mobility	High Demand Leisure	Low Demand Leisure	Domestic	Education	Social
Kruskal-Wallis H	1.360	2.274	1.434	1.981	2.165	8.496	3.781
Df	2	2	2	2	2	2	2
Asymp. Sig.	0.507	0.321	0.488	0.371	0.339	0.014	0.151

The last variable is Financial Situation, which according to the Kruskal-Wallis test, has one statistically significant relationship with selfcare (Sig = .013). I other words, a child having good, average, or low financial situation would impact selfcare levels.

Table 25: Financial situation

	Selfcare	Community mobility	High Demand Leisure	Low Demand Leisure	Domestic	Education	Social
Kruskal-Wallis H	8.686	1.005	3.843	2.235	3.050	2.557	3.033
Df	2	2	2	2	2	2	2
Asymp. Sig.	0.013	0.605	0.146	0.327	0.218	0.278	0.219

	Visual processing	Audio processing	Touch processing	Movement Processing	Body position processing	Oral Sensory processing	Conduct Associated with Sensory Processing
Kruskal-Wallis H	1.205	1.811	0.965	2.203	0.933	8.797	1.215
Df	2	2	2	2	2	2	2
Asymp. Sig.	0.547	0.404	0.617	0.332	0.627	0.012	0.545

	Social Emotional Responses Associated with Sensory Processing	Attention Responses Associated with Sensory Processing	Seeking	Avoiding	Sensitivity	Registration
Kruskal-Wallis H	1.233	1.649	4.725	0.917	2.607	0.942
Df	2	2	2	2	2	2
Asymp. Sig.	0.540	0.438	0.094	0.632	0.272	0.624

a.Kruskal Wallis Test

b. Grouping Variable: Financial Situation

Chapter Five: Discussion

5.1. Introduction

In this fifth chapter, we will review and discuss the results obtained through the research, in addition to formulating the recommendations resulting from these findings. This chapter represents the final step in the research, where the data and conclusions reached are interpreted and practical guidance is provided for future policies and practices in the studied field.

The discussion of the results centers on the data analysis and comprehension of the findings, which includes elucidating the relationships, trends, and contradictions found. Additionally, the importance of the results in the context of the study and the factors that may have influenced them will be discussed.

Subsequently, practical recommendations will be formulated aimed at guiding future policies and practices. These recommendations are based on the actual results of the research, with an explanation of how they can be applied and the potential benefits they can bring to the field.

5.2. Discussion and comparison with previous studies

Previous studies, such as those using the Child Sensory Profile 2 (CSP2), have also highlighted different sensory behaviors in children, which is consistent with the results of the current study. For example, work by Armstrong-Gallegos and Nicolson (2020) and Schulz and Stevenson (2018) shows that sensory sensitivity can significantly impact behaviors such as literacy and repetitive behaviors. These studies corroborate

current findings that sensory processing patterns such as avoidance and sensitivity are related to how children interact with their environment and complete tasks that require sensory input.

The discussion of the results will follow the sequence of the results. In the first question, the results show that during the preschool stage, the child's sensory processing does not show any difference in classification; all of the children in the data fall into the 'Just like others' classification. However, the results show that 'less than others' classification comes in second place, from 19.1% in movement level to 42.2% in body position level, and 'much more than others' classification is the lowest, from 11.2% in body position level to 23.6% in movement level. In other words, although the majority of children's responses fall into the 'Just like others' classification, there is a high number of 'less than others' classifications.

Likewise, studies like that of Little et al. (2016) classify children into different sensory profiles, emphasizing the broad diapason of sensory processing observed across children. The detailed categorization in former studies supports the notion that sensory processing is not invariant and that preschoolers display a range of responses to sensory stimulants.

Moreover, the prototypical view on the relation between activity participation—the older a child, the better performance should appear—was proven to be false. 'Much more than others' classification is signed for 5-year-old children with 8 occurrences and 3-year-old children with 5 occurrences. For the 'less than others' classification, 6-year-old children have the highest percentage in nine sensory processors, while the rest of

the items are attributed to 3-year-old children. In oral sensory level, 'much more than others' classification has interesting results where 5-year-old children and 6-year-old children show a high percentage of 23.5% and 20%, respectively. However, in touch level, social emotional responses associated with sensory level, and seeking level, 6-year-old children occupies the highest percentage in 'less than others' classification (53.3%, 53.3%, and 46.7% respectively).

There might be some contrasts in the intensity and specific behaviors associated with each sensory pattern when compared with earlier studies. For case, while some former studies might report advanced overall sensitivity or avoidance, the current study suggests a more balanced distribution across sensory patterns, with no single pattern overwhelmingly dominant. This difference could be attributed to variations in the sample populations, outcome measures used, or indeed the environmental surrounds in which the studies were conducted.

In former studies, it was set up that utmost children engage in colorful conditioning before starting preschool or academy, with a specific focus on social conditioning. This is attributed to differences in their situations of engagement and particular preferences. Still, there is variation in the types of preferred conditioning, as some children prefer conditioning that bear lower social commerce, while others prefer participation in social conditioning. This variation underscores the significance of farther exploration to understand the factors impacting sensitive processing on children's participation in daily contexts (Ismael et al., 2015; Sleeman & Brown, 2021; Choi & Jung, 2021; Gonçalves & Abreu, 2022; Mubarak et al., 2016).

In the **second question**, *the steady upward relation*, where 'yes' responses go in parallel with children's age, is revealed; this relation dominates the self-care domain in 9 items while 0 instances have shown in other items. However, the lowest positive responses were in the domestic domain, with zero occurrences of over 90% out of 8 items, and in the in the education domain, with 2 occurrences of over 90% out of 11. On the other hand, the rest of the domains have a high positive response: self-care is over 90% out of 17 items. Out of 16 items, 9 instances of over 90% have been shown, 11 instances of over 90% in low-demand leisure, and 6 instances of over 90% in high-demand leisure.

In all domains, 6-year-old children dominate occurrences of 100% 'yes' answers, which can be attributed to physical growth. For example, in high demand leisure domain, 6-year-old children get 100% positive responses in running, kicking the ball, throwing the ball, etc. the same idea applies for other items in different domains. The lowest percentage of 'yes' answers is for 3-year-old children in all domains.

The **third question** employs the Spearman correlation test to assess the level of relationship between the sensory processing level of Palestinian preschool-aged children and their level of participation in preschool activities. The results revealed weak correlations, however, only one correlation is statistically significant, > 0.05, between low demand leisure activities and touch processing (Sig = .047).

The **last question** deals with the level of participation of preschool-aged children in preschool activities based on various factors such as their relationship with family members, gender, age, child ordinal family, number of siblings, place of living,

governorate of residence, attendance at school or kindergarten, and the financial situation of the family.

For sensory processing, the results show that visual processing and touch processing have statistically significant differences between males and females. People who live in families are categorized into '5 or less' and 'more than 5'. Movement processing (Sig = 0.28), oral sensory processing (Sig =.043), and conduct associated with sensory processing and registration have statistically significant differences (Sig =.015) and (Sig =.026), respectively. The number of family members has a great impact on the mentioned sensory processing items. Additionally, *place of living* is the most crucial variable, as out of 13 items, 10 have a statistically significant relationship with it. Living in a village, a city, or a refugee camp affects Palestinian preschool children's sensory processing. Moreover, the financial situation variable has statistically significant differences with orally sensory processing. The rest of the variables have no statistically significant differences with sensory processing items.

For activity participation levels, low demand leisure (Sig =.017) and education (Sig = 0.011) show that children with different ages, 3, 4, 5, or 6, will have different participation levels in the activities. The result is acceptable since age differences would ultimately affect these activities. Another reasonable result implies that a child who goes to school or kindergarten has a statistically significant relationship with education (Sig =.014). also, a statistically significant relationship between financial situation and selfcare appears (Sig = .013).

So far, Palestinian preschool children are going through a reasonable track; in other words, the variable that shows the greatest impact, or statistically significant difference, is the one related to sociopolitical situation in Palestine.

5.3. Conclusion

The findings of this study shed light on the complex interplay between sensory processing, participation in preschool activities, and various demographic factors among Palestinian preschool-aged children. sensory processing levels fall into 'just like others' classification among Palestinian preschool children. However, 6-year-old children turned to have a very high, 100% in many cases, in activities that require more physical interaction in activity participation.

Place of living variable has a major correspondence; out of 13 items, 10 have a statistically significant relationship with place of living variable. Other variables have statistically significant relationship with items but can be reasonably comprehended. The place of living variable is crucial for Palestinian preschool children since the Palestinian demographic distribution is special due to sociopolitical situation.

5.4. Future Research and Recommendations:

1. Apply inclusive educational practices that accommodate different sensory processing requirements and preferences, icing that learning surroundings are sensitive-friendly and conducive to all children's learning styles.

2. Give targeted interventions and support for children with limited sensory processing patterns, aiming to enhance their sensitive chops and participation in preschool conditioning.

3. Address indigenous difference in preschool access and participation by allocating coffers and enforcing programs that promote indifferent access to quality early nonage education across different governorates.

4. Enhance early occupational therapy programs in preschool settings to foster active engagement in learning conditioning, ensuring the significant impact of structured educational gests on children's participation situations.

5. Conduct further probe to explore the nuanced connections between sensory processing, participation in preschool conditioning, and demographic factors, allowing for a deeper understanding of the factors impacting children's development and literacy gests.

5.5. Limitations

The findings of the research and their applicability may have been impacted by a number of restrictions this thesis encountered.

1. Extended Data gathering Period: Because of restrictions on movement and the West Bank's extensive geographic coverage, the data gathering phase took longer than expected. These limitations not only made the data collecting process take longer, but they also made it more difficult to access some places, which might have an impact on how consistently the data was collected.

2. Movement Restrictions: The West Bank's movement restrictions made gathering data much more difficult. Due to the difficult accessibility of various places, these limitations may have contributed to potential biases in the sample and made it more difficult for the researcher to effectively reach a wider range of individuals.
3. Lack of Knowledge with Sensory Concepts: Most caregivers in the West Bank are not very familiar with the notion of sensory processing. Because of their unfamiliarity, the participants needed more time from the researcher to fully introduce and clarify issues linked to sensory processing. This prolonged engagement prolonged the study's time overall, but it was also required to guarantee accurate and trustworthy responses.
4. Difficulty in Recruiting Participants: It was difficult to find and recruit research participants. Finding enough caregivers willing and able to take part in the study was challenging due to a combination of social, political, and geographic issues; this may have limited the sample size and diversity.
5. Restricted Geographic Coverage: The West Bank is the only region included in the study's sample. Therefore, it is not possible to generalize the results to include all preschool-aged Palestinians, including those residing in the Gaza Strip or Jerusalem. Variations in these locations' settings and cultures may result in varying degrees of participation and patterns of sensory processing.
6. Generalizability: The findings of this study might not be relevant to all preschool-aged Palestinians because of the particular focus on West Bank regions. The results' wider relevance may be constrained by the distinct sociopolitical and cultural

setting of the West Bank, which may have an impact on the patterns of participation and sensory processing identified.

Notwithstanding these limitations, the research offers insightful information about the participation and patterns of sensory processing of Palestinian preschoolers who are typically developing. To further explore the impact of the cultural environment on sensory processing and participation, and to improve the generalizability of the findings, future study should take into account a more comprehensive and diverse sample, including additional places like the Jerusalem, and Gaza Strip.

References

Abu-Dahab, S. M., Alheresh, R. A., Malkawi, S. H., Saleh, M., & Wong, J. (2020). Participation patterns and determinants of participation of young children with cerebral palsy. Australian Occupational Therapy Journal, 68(3), 195–204. https://doi.org/10.1111/1440-1630.12714

Adams, J. N., Feldman, H. M., Huffman, L. C., & Loe, I. M. (2015). Sensory processing in preterm preschoolers and its association with executive function. Early Human Development, 91, 227–233. https://doi.org/10.1016/j. earlhumdev.2015.01.013

Ali, Z., & Bhaskar, S. B. (2016). Basic statistical tools in research and data analysis. Indian Journal of Anaesthesia, 60(9), 662.

Al-Tarawneh, S., Al-Banna, M., & Al-Harbi, M. (2023). Sensory processing abilities in kindergarten children based on parents' perceptions: Evidence from Amman, Jordan. Early Child Development and Care, 193(12), 1847-1858. https://doi.org/10.1080/07380577.2023.2269439

American Academy of Pediatrics. (2021). Developmental milestones. In D. K. Borowitz, M. R. Gifford, & L. L. Rimsza (Eds.), AAP Textbook of Pediatric Care (2nd ed., pp. 76-80). American Academy of Pediatrics.

Armstrong-Gallegos, S., & Nicolson, R. I. (2020). Problems in audiovisual filtering for children with special educational needs. i-Perception, 11(4), 204166952095181. https://doi.org/10.1177/2041669520951816

Armstrong-Heimsoth, A., Schoen, S. A., & Bennion, T. (2021). An investigation of sensory processing in children and adolescents in congregate foster care. Occupational Therapy in Mental Health, 37(3), 224–239.

Baranek, G. T., Chin, Y. H., Hess, L. M., Yankee, J. G., Hatton, D. D., & Hooper, S. R. (2002). Sensory processing correlates of occupational performance in children with Fragile X Syndrome: Preliminary findings. The American Journal of Occupational Therapy, 56(5), 538–546.

Bar-Shalita, T., Vatine, J. J., & Parush, S. (2008). Sensory modulation disorder: A risk factor for participation in daily life activities. Developmental Medicine and Child Neurology, 50, 932–937. https://doi.org/10.1111/j.1469- 8749.2008.03095.x

Bart, O., Hajami, D., & Bar-Haim, Y. (2007). Predicting school adjustment from motor abilities in Kindergarten. Infant and Child Development, 16(6), 597–615.

Bart, O., Shayevits, S., Gabis, L. V., & Morag, I. (2011). Prediction of participation and sensory modulation of late preterm infants at 12 months: A prospective study. Research in Developmental Disabilities, 32(6), 2732–2738.

Baxter, A. (2017). Test review of the Sensory Profile. In J. F. Carlson, K. F. Geisinger, & J. L. Jonson (Eds.), The twentieth mental measurements yearbook (2nd ed.). http://marketplace.unl.edu/buros

Ben-Sasson, A., Carter, A. S., & Briggs-Gowan, M. J. (2009). Sensory over-responsivity in elementary school: Prevalence and social-emotional correlates. Journal of Abnormal Child Psychology, 37(5), 705-716. doi:10.1007/s10802-008-9295-8

Berg C., and. LaVesser,P. “The preschool activity card sort,” OTJR Occupation, Participation and Health, vol. 26, no. 4, pp. 143–151, 2006.

Buffone, Flávia Regina Ribeiro Cavalcanti, & Schochat, E. (2022). Sensory profile of children with central auditory processing disorder (CAPD). CoDAS (São Paulo), 34(1), e20190282-e20190282. https://doi.org/10.1590/2317-1782/20212019282

Bundy, A., Shia, S., Qi, L., & Miller, L. (2007). How does sensory processing dysfunction affect play? American Journal of Occupational Therapy, 61, 201–208.

Caron, K. G., Schaaf, R. C., Benevides, T. W., & Gal, E. (2012). Cross-cultural comparison of sensory behaviors in children with autism. The American Journal of Occupational Therapy, 66(5). https://doi.org/10.5014/ajot.2012.004226

Cartwright, J., & Crowe, S. (2011). In Patient and public involvement toolkit. essay, Blackwell Pub..

Centers for Disease Control and Prevention. (2021). Developmental milestones. Retrieved from https://www.cdc.gov/ncbddd/childdevelopment/positiveparenting/preschoolers.html

Cermak, S. A., & Daunhauer, L. A. (1997). Sensory processing in the post institutionalized child. The American Journal of Occupational Therapy, 51(7), 500–507. https://doi.org/10.5014/ajot.51.7.500

Chien, C.-W., Rodger, S., Copley, J., Branjerdporn, G., & Taggart, C. (2015). Sensory processing and its relationship with children's Daily Life Participation. Physical & Occupational Therapy In Pediatrics, 36(1), 73–87. https://doi.org/10.3109/01942638.2015.1040573

Choi, Y.-E., & Jung, H. (2021). Sensory processing as a predictor of leisure participation in early adolescents. Children, 8(11), 1005.

Critz, C., Blake, K., & Nogueira, E. (2015). Sensory processing challenges in children. The Journal for Nurse Practitioners, 11(7), 710–716. https://doi.org/10.1016/j.nurpra.2015.04.016

Crozier, S. C., Goodson, J. Z., Mackay, M. L., Synnes, A. R., Grunau, R. E., Miller, S. P., & Zwicker, J. G. (2016). Sensory processing patterns in children born very preterm. The American Journal of Occupational Therapy, 70(1), 7001220050p1-7001220050p7.

Dean, E., Dunn, W., & Little, L. (2016). Validity of the sensory profile 2: A confirmatory factor analysis. The American Journal of Occupational Therapy, 70(4_Supplement_1). https://doi.org/10.5014/ajot.2016.70S1-PO7054

Deshpande, G., Batliner, A., & Schuller, B. W. (2022). AI-Based human audio processing for COVID-19: A comprehensive overview. Pattern recognition, 122, 108289. https://doi.org/10.1016/j.patcog.2021.108289

Dhas, B. N. (2021). Occupational Balance among Parents of Typically Developing Children and Parents of Children with Disabilities Living in Qatar (Doctoral dissertation, Nova Southeastern University).

Dunn, W. (1997). The impact of sensory processing abilities on the daily lives of young children and their families: A conceptual model. Infants & Young Children, 9(4), 23–35.
Dunn, W. (1999). The Sensory Profile: User's manual. San Antonio, TX: Psychological Corporation

Dunn, W. (1999). The Sensory Profile: User's manual. San Antonio, TX: Psychological Corporation

Dunn, W. (2007). Supporting children to participate successfully in everyday life by using Sensory Processing Knowledge. Infants & Young Children, 20(2), 84–101. https://doi.org/10.1097/01.iyc.0000264477.05076.5d

Dunn, W. (2007). Supporting children to participate successfully in everyday life by using Sensory Processing Knowledge. Infants & Young Children, 20(2), 84–101. https://doi.org/10.1097/01.iyc.0000264477.05076.5d

Dunn, W. (2014). Sensory Profile 2 user's manual. Bloomington, MN: Psychological Corporation.

Dunn, W., Little, L., Dean, E., Robertson, S., & Evans, B. (2016). The state of the science on sensory factors and their impact on daily life for children. OTJR: Occupation, Participation and Health, 36(2_suppl). https://doi.org/10.1177/1539449215617923

Eeles, A. L., Spittle, A. J., Anderson, P. J., Brown, N. C., Lee, K., Boyd, R. N., & Doyle, L. W. (2013). Systematic review of infant sensory processing assessments. Dev Med Child Neurol, 55(4), 314-326.

Engel-Yeger, B. (2008). Sensory processing patterns and daily activity preferences of Israeli children. Canadian Journal of Occupational Therapy, 75(4), 220-229.

Engel-Yeger, B., & Jarus, T. (2008). Cultural and gender effects on Israeli children's preferences for activities. Canadian Journal of Occupational Therapy, 75, 139–148

Engel-Yeger, B., & Ziv-On, D. (2011). The relationship between sensory processing difficulties and leisure activity preference of children with different types of ADHD. Research in Developmental Disabilities, 32, 1154–1162

Engel-Yeger, B., Shani-Adir, A., & Kessel, A. (2011). Participation in leisure activities and sensory modulation deficiencies of children with atopic dermatitis. Acta Paediatrica, 100, e152–157.

Europa, E., Gitelman, D. R., Kiran, S., & Thompson, C. K. (2019). Neural connectivity in syntactic movement processing. Frontiers in Human Neuroscience, 13, 27.

Fardo, F., Spironelli, C., & Angrilli, A. (2013). Horizontal body position reduces cortical pain-related processing: evidence from late ERPs. PloS one, 8(11), e81964.

Ghanbari, S., Valipour, M., Heydari, F., Pourzamani, Z., Jamali, A. Z., & Nematollahi, S. (2018). Correlation between Sensory Processing Status and the Participation of Normal and Autistic (Normal Intelligence) School Children in Daily Living Activities. J Rehab Med., 7(1), 71–76.

Gonçalves, M., & Abreu, A. M. (2022). Sensory processing and occupational participation. Journal of Occupational Therapy, Schools, & Early Intervention, 1–16. https://doi.org/10.1080/19411243.2022.2112362

Gray, D. B., & Hendershot, G. E. (2000). The ICIDH-2: Developments for a new era of outcomes research. Archives of Physical Medicine and Rehabilitation, 81(Suppl. 2), S10-S14.

Gronski, M. P., Niemann, A., & Berg, C. (2012). Participation patterns of urban preschoolers attending head start. OTJR: Occupation, Participation and Health, 33(2), 68–75. https://doi.org/10.3928/15394492-20121026-01

Haley, S. M., Coster, W. J., Ludlow, L. H., Haltiwanger, J. T., & Andrellos, P. J. (1992). Pediatric Evaluation of Disability Inventory (PEDI). Physical & Occupational Therapy in Pediatrics, 13(4), 1-23.

Hamed-Daher, S., & Engel-Yeger, B. (2019). The relationships between sensory processing abilities and participation patterns of children with visual or auditory sensory impairments. The American Journal of Occupational Therapy, 73(4_Supplement_1).

Hindmarsh Sten, T., Li, R., Otopalik, A., & Ruta, V. (2021). Sexual arousal gates visual processing during Drosophila courtship. Nature, 595(7868), 549-553.

Humphry R. (2002). Young children's occupations: Explicating the dynamics of developmental processes. American Journal of Occupational Therapy 56; 171–179.

Igarashi, G., Karashima, C., & Uemura, J.-Ichi. (2020). Items selection for the Japanese version of the Preschool Activity Card Sort. OTJR: Occupation, Participation, and Health, 40(3), 166–174.

In, J. (2017). Introduction of a pilot study. Korean Journal of Anesthesiology, 70(6), 601.

Ismael, N. T., & Lawson, L. M. (2012). The impact of preschoolers' gender and sensory preferences on physical activity levels during play. British Journal of Occupational Therapy, 75(9), 429–435. https://doi.org/10.4276/030802212x13470263980874

Ismael, N. T., Lawson, L. A., & Cox, J. A. (2015). The relationship between children's sensory processing patterns and their leisure preferences and participation patterns. Canadian Journal of Occupational Therapy, 82(5), 316–324. https://doi.org/10.1177/0008417415577421

Ismael, N., Lawson, L. M., & Hartwell, J. (2018). Relationship between sensory processing and participation in daily occupations for children with autism spectrum disorder: A systematic review of studies that used Dunn's Sensory Processing Framework. The American Journal of Occupational Therapy, 72(3).

James, K., Miller, L. J., Schaaf, R., Nielsen, D. M., & Schoen, S. A. (2011). Phenotypes within sensory modulation dysfunction. Comprehensive Psychiatry, 52(6), 715-724. https://doi.org/10.1016/j.comppsych.2010.11.010

Jorquera-Cabrera, S., Romero-Ayuso, D., Rodriguez-Gil, G., & Triviño-Juárez, J. M. (2017). Assessment of sensory processing characteristics in children between 3 and 11 years old: A systematic review. Frontiers in pediatrics, 5, 57.

Khodabakhshi M., Abedi, A. and Malekpour, M. (2014). The Effect of Sensory Integration Therapy on Social Interactions and Sensory and Motor Performance in Children with Autism, Iran J. Cog. Edu. 1 (1): 35-45.

King G, Petrenchik T, Law M, Hurley P. The enjoyment of formal and informal recreation and leisure activities: a comparison of school-aged children with and without physical disabilities. Int J Disabil Dev Educ 2009; 56: 109–30.

King GA, Law M, King S, Hurley P, Hanna S, Kertoy M, Rosenbaum P.(2007). Measuring children's participation in recreation and leisure activities: construct validation of the CAPE and PAC. Child Care Health Dev. Jan;33(1):28-39.

Klaas S, Kelly E, Gorzkowski J, Homko E, &Vogel L. (2009). Assessing patterns of participation and enjoyment in children with Spinal Cord Injury. Developmental Medicine & Child Neurology, 52(5), 468–474.

Kong, M., & Moreno, M. A. (2018). Sensory processing in children. JAMA Pediatrics, 172(12), 1208. https://doi.org/10.1001/jamapediatrics.2018.3774

Lane, A. E., Young, R. L., Baker, A. E. Z., & Angley, M. T. (2010). Sensory processing subtypes in autism: Association with adaptive behavior. Journal of Autism and Developmental Disorders, 40, 112–122. https://doi.org/10.1007/s10803-009-0840-2

LaVesser, P., & Berg, C. (2010). Participation patterns in preschool children with an autism spectrum disorder. OTJR: Occupation, Participation and Health, 31(1), 33–39. https://doi.org/10.3928/15394492-20100823-01

Law, M. (2002). Participation in the occupations of Everyday Life. The American Journal of Occupational Therapy, 56(6), 640–649. https://doi.org/10.5014/ajot.56.6.640

Law, M., King, G., King, S., Kertoy, M., Hurley, P., Rosenbaum, P., ... & Hanna, S. (2006). Patterns of participation in recreational and leisure activities among children with complex physical disabilities. Developmental Medicine & Child Neurology, 48(5), 337-342.

Licciardi, L., & Brown, T. (2021). An overview & critical review of the sensory profile – second edition. Scandinavian Journal of Occupational Therapy, 1–13.

Lin, L.-Y. (2020). Activity participation and sensory processing patterns of preschool-age children with autism spectrum disorder. The American Journal of Occupational Therapy, 74(6).

Little, L. M., Ausderau, K., Sideris, J., & Baranek, G. T. (2015). Activity participation and sensory features among children with autism spectrum disorders. Journal of Autism and Developmental Disorders, 45(9), 2981–2990.

Little, L. M., Dean, E., Tomchek, S. D., & Dunn, W. (2016). Classifying sensory profiles of children in the general population. Child: Care, Health and Development, 43(1), 81–88. https://doi.org/10.1111/cch.12391

Loh, S. Y., Ee, S. I., & Marret, M. J. (2021). Sensory processing and its relationship to participation among childhood occupations in children with autism spectrum disorder: Exploring the profile of differences. International Journal of Developmental Disabilities, 1–12.

Malkawi, S. H., Abu-Dahab, S. M., Amro, A. F., & Almasri, N. A. (2017). The psychometric properties of the Arabic Preschool Activity Card Sort. Occupational Therapy International, 2017, 1–6.

Mann C (2003) Observational research methods. Research design II: cohort, cross sectional, and case control studies. Emergency Medicine Journal: EMJ 20(1): 54-60

Mikami, M., Hirota, T., Takahashi, M., Adachi, M., Saito, M., Koeda, S., Yoshida, K., Sakamoto, Y., Kato, S., Nakamura, K., & Yamada, J. (2020). Atypical sensory processing profiles and their associations with motor problems in preschoolers with developmental coordination disorder. Child Psychiatry & Human Development, 52(2), 311–320. https://doi.org/10.1007/s10578-020-01013-5

Miller, L. J., Anzalone, M. E., Lane, S. J., Cermak, S. A., & Osten, E. T. (2007). Concept evolution in sensory integration: A proposed nosology for diagnosis. The American Journal of Occupational Therapy, 61(2), 135-140. doi:10.5014/ajot.61.2.135

Mubarak, A., Cyr, C., St-André, M., Paquette, D., Emond-Nakamura, M., Boisjoly, L., Palardy, S., Adin, S., & Stikarovska, I. (2016). Child attachment and sensory regulation in psychiatric clinic-referred preschoolers. Clinical Child Psychology and Psychiatry, 22(4), 572–587. https://doi.org/10.1177/1359104516667997

Navarrete-Muñoz, E.-M., Fernández-Pires, P., Navarro-Amat, S., Hurtado-Pomares, M., Peral-Gómez, P., Juárez-Leal, I., Espinosa-Sempere, C., Sánchez-Pérez, A., & Valera-Gran, D. (2019). Association between adherence to the antioxidant-rich Mediterranean diet and sensory processing profile in school-aged children: The Spanish cross-sectional INPROS project. Nutrients, 11(5), 1007. https://doi.org/10.3390/nu11051007

Nesayan, A., Asadi Gandomani, R., Movallali, G., & Dunn, W. (2018). The relationship between sensory processing patterns and behavioral patterns in children. Journal of Occupational Therapy, Schools, & Early Intervention, 11(2), 124–132.

Nesayan, A., Asadi Gandomani, R., Movallali, G., & Dunn, W. (2018). The relationship between sensory processing patterns and behavioral patterns in children. Journal of Occupational Therapy, Schools, & Early Intervention, 11(2), 124–132.

O. Miguel, H., Sampaio, A., Martínez-Regueiro, R., Gómez-Guerrero, L., López-Dóriga, C. G., Gómez, S., ... & Fernández-Prieto, M. (2017). Touch processing and social behavior in ASD. Journal of Autism and Developmental Disorders, 47, 2425-2433.

O. Miguel, H., Sampaio, A., Martínez-Regueiro, R., Gómez-Guerrero, L., López-Dóriga, C. G., Gómez, S., ... & Fernández-Prieto, M. (2017). Touch processing and social behavior in ASD. Journal of Autism and Developmental Disorders, 47, 2425-2433.

Occupational therapy practice framework: Domain and process—Fourth edition. (2020). The American Journal of Occupational Therapy, 74(Supplement_2). https://doi.org/10.5014/ajot.2020.74s2001

Palestinian Central Bureau of Statistics. (2024). Population. Retrieved June 1, 2024, from https://www.pcbs.gov.ps/site/lang__ar/881/default.aspx#PopulationA

Palestinian Central Bureau of Statistics. (2024). Population. Retrieved June 1, 2024, from https://www.pcbs.gov.ps/site/lang__ar/881/default.aspx#PopulationA

Pallant, J. (2020). SPSS Survival Manual: A step by step guide to data analysis using IBM SPSS. McGraw-Hill Education.

Parham, L. D. (2002). Sensory integration and occupation. In A.C. Bundy, S. J. Lane, & E. A. Murray, (Eds.), Sensory integration theory and practice (2nd ed.),(pp. 413-434). Philadelphia, PA: F.A. Davis.

Parham, L. D., & Mailloux, Z. (2010). Sensory integration. In B. J. Case-Smith & J. C. O'Brien (Eds.), Occupational Therapy for Children (6th ed., pp. 329-371). Mosby Elsevier.

Pfeiffer, B., Brusilovskiy, E., Bauer, J., Salzer, M. S. (2014). Sensory processing, participation, and recovery in adults with serious mental illnesses. Psychiatric Rehabilitation Journal, 37(4), 289–296.

Piller, A., & Pfeiffer, B. (2016). The sensory environment and participation of preschool children with autism spectrum disorder. OTJR: Occupation, Participation, and Health, 36(3), 103–111.

Provost, B., Crowe, T. K., Aeree, K., Osbourn, P. L., & McClain, C. (2009). Sensory behaviors of preschool children with and without autism spectrum disorders. New Zealand Journal of Occupational Therapy, 55(2), 9-1.

Ray, A., Najmi, A., & Sadasivam, B. (2021). How to choose and interpret a statistical test? an update for budding researchers. Journal of Family Medicine and Primary Care, 10(8), 2763.

Sandberg, A., & Eriksson, A. (2010). Children's participation in preschool – on the conditions of the adults? Preschool staff's concepts of children's participation in preschool everyday life. Early Child Development and Care, 180(5), 619–631.

Schaaf, R. C., Benevides, T., Kelly, D., & Mailloux, Z. (2014). Occupational therapy and sensory integration for children with autism: A feasibility, safety, acceptability and fidelity study. Autism: The International Journal of Research and Practice, 18(6), 699-709. doi:10.1177/1362361313495967

Schaaf, R. C., Cohn, E. S., Burke, J., Dumont, R., Miller, A., & Mailloux, Z. (2015). Linking sensory factors to participation: Establishing intervention goals with parents for children with autism spectrum disorder. The American Journal of Occupational Therapy, 69(5).

Schaaf, R. C., Cohn, E. S., Burke, J., Dumont, R., Miller, A., & Mailloux, Z. (2015). Linking sensory factors to participation: Establishing intervention goals with parents for children with autism spectrum disorder. The American Journal of Occupational Therapy, 69(5).

Schulz, S. E., & Stevenson, R. A. (2018). Sensory hypersensitivity predicts repetitive behaviours in autistic and typically-developing children. Autism, 23(4), 1028–1041. https://doi.org/10.1177/1362361318774559

Search legal contracts, clauses, and legal definitions. Law Insider. (n.d.). Retrieved December 29, 2021, from https://www.lawinsider.com/dictionary/preschool-children.

Setia, M. S. (2016). Methodology series module 3: Cross-sectional studies. Indian journal of dermatology from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4885177/.

Sleeman, H. R. G., & Brown, T. (2021). An exploratory study of the relationship between typically-developing school-age children's sensory processing and their activity participation. British Journal of Occupational Therapy, 85(4), 251–261. https://doi.org/10.1177/03080226211020651

Smith, H., Lane, C., Al-Jawahiri, R., & Freeth, M. (2022). Sensory processing in Sotos syndrome and Tatton-Brown Rahman syndrome. https://doi.org/10.31234/osf.io/zc23r

Sood, D., LaVesser, P., & Schranz, C. (2014). Influence of home environment on participation in home activities of children with an autism spectrum disorder. The Open Journal of Occupational Therapy, 2(3). https://doi.org/10.15453/2168-6408.1082

Sparrow, S. S., Cicchetti, D. V., & Balla, D. A. (2005). Vineland Adaptive Behavior Scales (2nd ed.). American Guidance Service.

Sparrow, S. S., Cicchetti, D. V., & Saulnier, C. A. (2016). Vineland Adaptive Behavior Scales, Third Edition (Vineland-3). Pearson.

Stratton, S. (2021). Population Research: Convenience Sampling Strategies. Prehospital and Disaster Medicine, 36(4), 373-374.

Tomchek, S. D., & Dunn, W. (2007). Sensory processing in children with and without autism: A comparative study using the Short Sensory Profile. American Journal of Occupational Therapy, 61(2), 190-200.

Üstün, T. B., Chatterji, S., Bickenbach, J., Kostanjsek, N., & Schneider, M. (2003). The International Classification Of Functioning, Disability And Health: A New Tool For Understanding Disability And Health. Disability and Rehabilitation, 25(11-12), 565–571.

Ware, J. E., Jr., & Keller, S. D. (1996). Interpreting general health measures. In B. Spilker (Ed.), Quality of life and pharmacoeconomics in clinical trials (2nd ed., pp. 445–460). Philadelphia: Lippincott-Raven.

Watling, R. (2019). Sensory processing and maladaptive behavior: Profiles within the Down syndrome phenotype: Applying findings to practice. Physical &Occupational Therapy in Pediatrics, 39(5), 477–479. https://doi.org/10.1080/01942638.2019.1645535

Wilbarger, J., Gunnar, M., Schneider, M., & Pollak, S. (2010). Sensory processing in internationally adopted, post-institutionalized children. Journal of Child Psychology and Psychiatry, 51(10), 1105–1114.

World Health Organization. (2001). International Classification of functioning, disability and health. Icf.

Zengin, G., & Akyurek, G. (2021). The effect of occupational therapy home intervention on oral sensory processing and nutrition problems in children with oral hypersensitive Down syndrome. Journal of the Neurological Sciences, 429.

Appendices

Appendix 1: Eligibility Criteria

Eligibility Criteria:

- Must be a parent of a child between 3 and 6 years old.
- The child must not have any clinical diagnoses such as schizophrenia, Autism spectrum disorder, Fetal Alcohol Syndrome, attention-deficit/hyperactivity disorder, or Fragile X syndrome affecting sensory processing.
- The child should have no physical, neurological, behavioral, intellectual, learning, or psychological problems.
- The child must live in the West Bank.
- The child must live within a regular family context (not institutionalized).
- Parents must speak, write, and understand Arabic to complete assessment forms.

Appendix 2: Arabic AAUP-IRB Informed Consent Formal

Arab American University
Scientific Research Deanship
Ethical Review Committee

الجامعـــة العربيـــة الأمريكيـــة
عمادة البحث العلمي
لجنة اخلاقيات البحث العلمي

نموذج الموافقة

AAUP-IRBرقم كود..... :.
AAUP-IRBتاريخ..... :

أنا الموقع ..... (اسم المشارك / اختياري) أوافق بموجبه على المشاركة في دراسة الاستبيان المحددة أدناه:

العلاقة بين المعالجة الحسية و المشاركة، في مرحلة ما قبل المدرسة، لدى الأطفال الفلسطينيي ، استكمالاً لمتطلبات الحصول على درجة الماجستير في تخصص العلاج الوظيفي من الجامعة العربية الأمريكية في فلسطين.

تم شرح طبيعة الدراسة والغرض منها من خلال الباحثة الرئيسية وتفسيرها بوضوح باللغة العربية ☐

لقد تم إخباري عن طبيعة البحث من حيث منهجيتة والآثار السلبية المحتملة له (حسب نموذج معلومات المشارك) ☐

بعد معرفة وفهم جميع المزايا والعيوب المحتملة لهذه الدراسة ، أوافق طواعية بمحض إرادتي على المشاركة في الدراسة المحددة أعلاه ☐

أفهم أنه يمكنني الانسحاب من هذه الدراسة في أي وقت دون إبداء أي سبب على الإطلاق ☐

التاريخ: ..... توقيع المشارك/ة: .....

التاريخ: ..... توقيع الباحثة: .....

أؤكد أنني أوضحت للمشارك طبيعة وهدف الدراسة المذكورة أعلاه.

التاريخ: ..... توقيع الباحثة: .....

جنين - ص.ب: 240 هاتف: 970-4-2418888 فاكس: 970-4-2510813
Jenin - P.O. Box: 240 Tel: 970-4-2418888 Fax: 970-4-2510813 E-mail: src@aaup.edu Website: www.aaup.edu

Appendix 3: Arabic AAUP-IRB Participant Information Sheet

Arab American University
Scientific Research Deanship
Ethical Review Committee

الجامعـــة العربيـــة الأمريكيـــة
عمادة البحث العلمي
لجنة اخلاقيات البحث العلمي

نموذج معلومات المشارك

عنوان الدراسة: العلاقة بين المعالجة الحسية والمشاركة لدى الاطفال الفلسطينيين في جيل ما قبل المدرسة.
اسم الباحثة: دانية عودة

نرغب بدعوتكم للمشاركة في هذه الدراسة، ليتسنى لكم فهم سبب القيام بهذه الدراسة ، وما تتضمنه قبل أن تأخذوا قرار المشاركة بها من عدمه. أرجو إطلاعكم على المعلومات المدرجة أدناه، وعدم التردد بالسؤال فيما إذا كان هناك شيء غير واضح، أو احتياجكم لمعلومات توضيحية أكثر بخصوص الدراسة.

1. ما هو الهدف من هذه الدراسة؟

هذه الدراسة هي رسالة الماجستير الخاصة بي، علماً بأنني طالبة في برنامج العلاج الوظيفي المطروح من قبل الجامعة العربية الأميركية في فلسطين. تهدف هذه الدراسة للإجابة على الاسئلة التالية: هل أنماط المعالجة الحسية مرتبطة بالمشاركة لدى الاطفال الفلسطينيين في مرحلة ما قبل المدرسة عن طريق تقييم المعالجة الحسية لهؤلاء الأطفال،و كذلك تقييم مشاركة هذه الفئة ودراسة العلاقة بينهما، وصولاً لتحقيق الهدف الأساسي للدراسة.

2. ما أهمية هذه الدراسة؟

هذه الدراسة تركز على جوانب رئيسية لتطور الطفل، والتي تشمل المعالجة الحسية والمشاركة. حيث أن مشاركة الطفل في نشاطات الحياة اليومية المتنوعة تتأثر بأنماط المعالجة الحسية لديه. حيث يدرك الاطفال التوقعات الاجتماعية، و يشكلون الصداقات، و يطورون مهارات التواصل لديهم، ويصلون الى مراحل بالغة الأهمية من التطور عن طريق المشاركة. حيث أن دعم المشاركة ممكن أن يتم من خلال فهم انماط المعالجة الحسية.

3. لماذا تمت دعوتي للمشاركة في هذه الدراسة؟

تمت الدعوة للمشاركة في هذه الدراسة لانه لديك طفلاً واحداً على الاقل يمتلك معايير الاشتراك بهذه الدراسة، حيث أن طفلك:

- يمتلك الجنسية الفلسطينية.
- لا يمتلك تشخيصاً طبياً.
- ليس لديه أي مشاكل جسدية، عصبية، سلوكية، ذهنية، تعلمية أو نفسية.
- عمره يتراوح بين 3 إلى 6 سنوات.
- يعيش في الضفة الغربية.
- يعيش في نطاق عائلي منتظم.
- كما أن ولي الأمر المشارك في الدراسة نيابة عن الطفل يتكلم، و يكتب ويفهم اللغة العربية لاستكمال التقييمات المطلوبة و تستطيع المشاركة في الدراسة خلال فترة جمع المعلومات و التقييم.

4. من لا يستطيع المشاركة في الدراسة؟

الأهل الذين ليس لديهم طفل يتراوح عمره بين ال3 إلى 6 سنوات، الأهل الذين لا يتكلمون ولا يكتبون باللغة العربية، الأهل الذين يمتلك طفلهم سجلاً يتضمن مشاكل صحية أو تطورية أو طفل يعيش ضمن إطار مؤسسة، و لا يمتلك الجنسية الفلسطينية، و لا يعيش في الضفة الغربية.

Appendix 4: Arabic Demographic Questionnaire

استبيان المعلومات الديموغرافية

.

يرجى وضع x في المربع المطلوب ، واصفا طفلك/ طفلتك:

ما علاقتك بالطفل: الأم□ الأب□

الجنس: ذكر □ أنثى □

هل كلا الوالدين على قيد الحياة: نعم □ لا□

تاريخ ولادة الطفل: :

.....

ترتيب الطفل في الأسرة بالنسبة للأخ: الطفل الوحيد الأول الثاني الثالث الرابع □ الخامس □ الآخر

هل ولد طفلك قبل الأوان (قبل الأسبوع 37 من الحمل) ؟ □ نعم □ لا

كم عدد الأشخاص الذين يعيشون في منزل العائلة: 2 □ 3□ 4□ 5□ 6□ 7□ 8 □9 □أكثر من 9□

هل يعيش طفلك مع أكثر من ثلاثة أشقاء تقل أعمارهم عن 18 عامًا: نعم □ لا□

أين تعيش؟ □ مدينة □قرية □ مخيم

اذكر اسم مكان إقامتك (المدينة أو القرية أو المخيم)..... :

هل يذهب طفلك إلى المدرسة / روضة الأطفال أو أي مؤسسة مماثلة؟ □ نعم □ لا

إذا كانت الإجابة بنعم ، فاذكر نوع المؤسسة.....

كيف تصف وضعك الاقتصادي؟ جيد □ متوسط □ منخفض

Appendix 5: Arabic Preschool Activity Card Sort

ARABIC PRESCHOOL ACTIVITY CARD SORT

هل يشارك طفلك في أي من هذه النشاطات ؟

بطاقة تصنيف النشاط لأطفال ما قبل المدرسة

الصورة	النشاط	نعم	نعم مع مساعدة كبير	نعم مع مساعدة بيئة	لا اطفال	لا بالغين	لا بيئة	ملاحظـــــــــات
1.	العناية بالشعر							
2.	أخذ قيلولة							
3.	تفريش الأسنان							
4.	اللبس							
5.	النوم في الليل							
6.	الأكل بالشوكة							
7.	الأكل بالملعقة							
8.	الشرب							
9.	غسل أعضاء الجسم							
10.	استعمال الحمام							
11.	لبس الأحذية							
12.	الشرب من مصاصة / قشة							
13.	أكل السندويش							
14.	تنظيف الأنف (النف)							
15.	النوم عند الوالدين							
16.	اختيار اللبس							
17.	رش العطر							
18.	فتح الباب							
19.	قص الشعر							
20.	الأكل في المطعم							
21.	استعمال حمام عام							
22.	ركوب سيارة							
23.	زيارة الطبيب							

الصورة	النشاط	نعم	نعم مع مساعدة كبير	نعم مع مساعدة البيئة	لا اطفال	لا بالغين	لا البيئة	ملاحظـــــــــات
24.	المشي على الدرج							
25.	ركوب / الخروج من السيارة							
26.	شراء المواد التموينية مع الوالدين							
27.	السفر							
28.	ركوب الحافلة							
29.	زيارة طبيب الأسنان							
30.	حضور التجمعات الدينية							
31.	قطع الشارع							
32.	الذهاب الى مدينة الملاهي							
33.	الذهاب إلى الدكانة/ السوبر ماركت							
34.	ركوب دراجة هوائية							
35.	ركوب السكوتر							
36.	الركض							
37.	التسلق							
38.	ركل كرة							
39.	رمي كرة							
40.	اللعب بالأماكن المخصصة للعب							
41.	اللعب مع حيوان أليف							
42.	اللعب بالماء أثناء الحمام							
43.	الرقص							
44.	الاستكشاف في البرية							
45.	اللعب بالمعجون							
46.	بناء المكعبات							
47.	اللعب لوحده							

الصورة	النشاط	نعم	نعم مع مساعدة كبير	نعم مع مساعدة البيئة	لا اطفال	لا بالغين	لا بيئة	ملاحظات
48.	اللعب على الحاسوب / البلاي ستيشن							
49.	القص							
50.	حل الاحجيات							
51.	التارجح							
52.	مشاهدة التلفاز							
53.	الاستماع الى الموسيقى							
54.	التلوين والرسم							
55.	لعب التقمص / التخيل							
56.	تكسير الألعاب/ فك الأشياء							
57.	نفخ البالون							
58.	تجميع البطاقات							
59.	تشغيل الأجهزة الكهربائية							
60.	اللعب بالتراب /الرمل							
61.	حمل الاشياء							
62.	المصارعة							
63.	تبادل الأدوار في اللعب							
64.	التصفح /النظر في الكتب							
65.	الحضن							
66.	لعب رياضة جماعية							
67.	التنزه/ التمشي							
68.	التحدث على الهاتف							

الصورة	النشاط	نعم	نعم مع مساعدة الكبار	نعم مع مساعدة البيئة	لا اطفال	لا بالغين	لا بيئة	ملاحظات
69.	حضور أعياد الميلاد							
70.	التحدث مع صديق و العائلة							
71.	لعب الألعاب الجماعية مع الأطفال							
72.	الزيارات مع الكبار							
73.	التجمع مع العائلة							
74.	سرد النكت							
75.	الذهاب في رحلات مع العائلة							
76.	فتح الهدايا							
77.	الطبخ							
78.	التكتيس							
79.	إفراغ القمامة							
80.	العمل بالحديقة							
81.	الاهتمام بحيوان أليف							
82.	التنظيف							
83.	ترتيب طاولة الطعام							
84.	ترتيب الغرفة/ السرير							
85.	الصلاة							
86.	اخذ حصص جماعية							
87.	الانتظار في الدور							
88.	طلب المساعدة							
89.	حل المشاكل							
90.	كتابة الاحرف							
91.	الاستماع في المجموعة							
92.	الذهاب إلى الحضانة / الروضة							

الصورة	النشاط	نعم	نعم مع مساعدة كبار	نعم مع مساعدة البيئة	لا اطفال	لا بالغين	لا بيئة	ملاحظات
93.	اتباع الإرشادات							
94.	الجلوس في كرسي							
95.	الحفظ والإلقاء							

المفتاح: نعم بمساعدة من الكبار، نعم بمساعدة دعم بيني، المساعدة تعني أي مساندة فوق الطبيعي لأي طفل بعمر ما قبل المدرسة.

أذكر 5 نشاطات لا يقوم بها طفلك أو أنت غير راضي عن أدائها أو يريد مساعدة لأدائها

النشاط	أهمية النشاط لك 10-1	مدى المشاركة في النشاط 10-1	مدى الرضى عن هذا النشاط 10-1	مدى تكرار هذا النشاط الآن العديد من المرات يوميا يوميا/ أسبوعيا/ شهريا
.1				
.2				
.3				
.4				
.5				

1 2 3 4 5 6 7 8 9 10
غير مهم مهم جدا

1 2 3 4 5 6 7 8 9 10
لا يشارك أبدا يشارك دائما

1 2 3 4 5 6 7 8 9 10
غير راضي أبدا راضي تماما

Appendix 6: Arabic Child Sensory Profile 2

الملف الحسي للأطفال 2

وفقي دن

	استبانة مقدم الرعاية		
	من عمر 3 سنوات إلى 14 سنة و11 شهر		
	للاستخدام المكتبي فقط		
	السنة	الشهر	اليوم
تاريخ التقييم			
تاريخ الميلاد			
عمر الطفل			

الاسم الأول للطفل:
اسم عائلة الطفل:
اسم والد الطفل:
رقم الهوية:
الاسم الذي يفضل الطفل أن يدادى به (اذكره إذا كان مختلفا عن الاسم المذكور مسبقا):
جنس الطفل: ذكر ☐ انثى ☐
تاريخ الميلاد:
تاريخ التقييم:
اسم المُقيِّم/مقدم الخدمة:
مهنة المُقيِّم/مقدم الخدمة:
اسم مقدم الرعاية/ معيئ الاستبانة:
علاقة مقدم الرعاية بالطفل:
اسم المدرسة/الحضانة:
المرحلة الدراسية/الصف:
ما هو ترتيب طفلك بين أشقائه (على سبيل المثال: الطفل الأول، الطفل الثالث، إلخ)
الطفل الوحيد الأول الثاني الثالث الرابع الخامس آخر _____
هل كان هناك أكثر من ثلاثة أطفال تتراوح أعمارهم بين الولادة و18 عاماً يسكنون في منزلك خلال فترة الاثني عشر (12) شهرا الماضية؟ نعم لا

التعليمات

تحتوي الصفحات التالية على عبارات تصف كيف قد يتصرف الأطفال. يرجى قراءة كل العبارات وتحديد الخيار الذي يصف بشكل أفضل عدد المرات التي يُظهر فيها طفلك هذه السلوكيات. يرجى تحديد خيار واحد لكل عبارة.
استخدم هذه الإرشادات لتحديد اجابتك/تعليقك:
إذا أتيحت له الفرصة، طفلي ...

تقريبا دائما	يستجيب بهذه الطريقة تقريبا دائما (90% أو أكثر من الوقت)
غالبا	يستجيب بهذه الطريقة غالبا (75% من الوقت)
نصف الوقت	يستجيب بهذه الطريقة نصف الوقت (50% من الوقت)
أحيانا	يستجيب بهذه الطريقة أحيانا (25% من الوقت)
تقريبا ابدا	لا يستجيب بهذه الطريقة أبدا تقريبا (10% أو أقل من الوقت)
لا ينطبق	إذا كنت غير قادر على الإجابة لأنك لم تلاحظ السلوك أو تعتقد أنه لا ينطبق على طفلك، يرجى تحديد خيار لا ينطبق

تقريبا دائما = 90% او أكثر	غالبا = 75%	نصف الوقت =50%	أحيانا = 25%	تقريبا ابدا = 10% او اقل

المعالجة السمعية

	الفقرة		تقريبا دائما	غالبا	نصف الوقت	أحيانا	تقريبا أبدا	لا ينطبق
	طفلي ...							
	1	يظهر ردة فعل قوية للضوضاء غير المتوقعة أو العالية (على سبيل المثال، صفارات الإنذار، نباح الكلب، مجفف الشعر						
	2	يضع يديه على أذنيه للحماية من الأصوات						
	3	يواجه صعوبة في إتمام مهامه عندما تكون الموسيقى أو يكون التلفاز قيد التشغيل						
	4	يتشتت انتباهه عندما يكون هناك الكثير من الضوضاء حوله						
	5	يصبح غير منتج إذا كانت هناك ضوضاء خلفية (على سبيل المثال: مروحة، ثلاجة)						
	6	يبدو انه لا يهتم أو يتجاهلني عندما أتحدث معه						
	7	يبدو انه لا يسمعني عندما أنادي على اسمه (على الرغم من (علمك بعدم وجود مشكلة سمعية لدى طفلك						
	8	يستمتع بالضوضاء العربية أو يحدث ضوضاءً من أجل المتعة						

تعليقات وملاحظات المعالجة السمعية:

المعالجة البصرية

	الفقرة		تقريبا دائما	غالبا	نصف الوقت	أحيانا	تقريبا أبدا	لا ينطبق
	طفلي ...							
	9	يفضل اللعب أو العمل في إضاءة خافتة						
	10	يفضل الألوان الفاقعة أو الأنماط في الملابس						
	11	يستمتع بالنظر الى التفاصيل البصرية في الأشياء						
	12	يحتاج الى مساعدة في العثور على الأشياء الواضحة بالنسبة للآخرين						
	13	يشعر بالانزعاج من الأضواء الساطعة أكثر من الأطفال الاخرين في نفس عمره						
	14	يشاهد الناس وهم يتحركون في الغرفة						
مجموع الدرجات								
	15	يشعر بالانزعاج من الأضواء الساطعة (على سبيل المثال، يحتمي من اشعة الشمس العابرة من خلال نافذة السيارة)						

تعليقات وملاحظات المعالجة البصرية:

تقريبا دائما = 90% او أكثر	غالبا = 75%	نصف الوقت =50%	أحيانا = 25%	تقريبا ابدا = 10% او اقل

المعالجة الحسية\اللمسية

	الفقرة		تقريبا دائما	غالبا	نصف الوقت	أحيانا	تقريبا ابدا	لا ينطبق
	طفلي ...							
	16	يظهر الضيق أثناء القيام بأعمال العناية الشخصية (على سبيل المثال، الشجار أو البكاء أثناء قص الشعر، غسل الوجه، قص الأظافر)						
	17	يتذمر عند ارتداء الأحذية أو الجوارب						
	18	يظهر استجابة انفعالية أو عدوانية عندما يتم لمسه						
	19	يصبح قلقا عند وقوفه بالقرب من الآخرين (على سبيل المثال، في الطابور)						
	20	يفرك أو يحك موضعا من جسمه تم لمسه فيه						
	21	يلامس الأشخاص أو الأشياء لدرجة مضايقة الاخرين						
	22	يبدى حاجة للمس الألعاب، الأسطح، أو الملموسات (على الأشياء) سبيل المثال، يريد لمس كل شيء						
	23	يبدو عليه عدم إدراك الألم						
	24	يبدو عليه عدم إدراك التغيير فى درجة الحرارة						
	25	يلامس الأشخاص أو الأشياء أكثر من الأطفال فى نفس عمره						
	26	لا يلاحظ اتساخ وجهه أو يديه						

تعليقات وملاحظات المعالجة الحسية\اللمسية:

المعالجة الحركية

	الفقرة		تقريبا دائما	غالبا	نصف الوقت	أحيانا	تقريبا ابدا	لا ينطبق
	طفلي ...							
	27	يسعى للحركة بحيث يتعارض ذلك مع الروتين اليومى (مثلا، لا يمكنه الجلوس بسكون، يتململ)						
	28	يهتز فى الكرسى أو على الأرض أو أثناء الوقوف						
	29	يتردد فى صعود أو نزول العتبات أو الدرج (مثلا يتوخى الحذر، يتوقف قبل أن يتحرك)						
	30	يصبح متحمسا خلال الأنشطة البدنية الحركية						
	31	يجازف بالتسلق بطريقة غير آمنة أو خطرة						
	32	يتهيز الفرص للسقوط دون الاهتمام بسلامته الشخصية (مثلا، يقع عن قصد)						
	33	يفقد التوازن بشكل غير متوقع عند المشى على سطح غير مستو						
	34	يصطدم بالأشياء، ولا يلاحظ الأدوات أو الأشخاص فى طريقه						

تعليقات وملاحظات المعالجة الحركية:

تقريبا دائما = 90% او أكثر	غالبا = 75%	نصف الوقت =50%	أحيانا = 25%	تقريبا ابدا = 10% او اقل

معالجة وضعية الجسم

	الفقرة		تقريبا دائما	غالبا	نصف الوقت	أحيانا	تقريبا ابدا	لا ينطبق
	طفلي ...							
	35	يتحرك بصلابة وتيبُس						
	36	يتعب بسهولة، خصوصا عند الوقوف أو إبقاء الجسم في وضعية واحدة محددة						
	37	تبدو عضلاته ضعيفة						
	38	يقوم بدعم جسمه عن طريق الاستناد على الأشياء (مثلا، يثبت رأسه على يديه، يستند على الحائط)						
	39	يتشبث بالأشياء، بالحائط أو درابزين السلم أكثر من الأطفال في نفس عمره						
	40	يمشي بصوت عالٍ، كأن قدماه ثقيلتان						
	41	يتمدد على الأثاث أو على أشخاص آخرين						
	42	يحتاج الى بطانيات ثقيلة للنوم						

تعليقات وملاحظات معالجة وضعية الجسم:

المعالجة الحسية فيما يتعلق بالفم

	الفقرة		تقريبا دائما	غالبا	نصف الوقت	أحيانا	تقريبا ابدا	لا ينطبق
	طفلي ...							
	43	يشعر بالتقيؤ بسهولة عندما يلمس الطعام فمه أو عند وضع أدوات الطعام في الفم						
	44	يرفض نكهات أو روائح طعام معينة تكون عادةً جزءاً من وجبات الأطفال العادية						
	45	يأكل فقط أطعمة بنكهات معينة (مثلا حلو، مالح)						
	46	يقيد نفسه بتناول أطعمة ذات قوام معين						
	47	انتقائي في الطعام، خاصةً فيما يتعلق بقوام الطعام						
	48	يشم الأشياء غير العذائية						
	49	يفضل بشدة نكهات معينة من الطعام						
	50	يشتهي أطعمة، نكهات، أو روائح معينة						
	51	يضع أشياءً في فمه (مثلا، قلم رصاص، يديه)						
	52	يعض لسانه أو شفتيه أكثر من الأطفال في نفس عمره						

تعليقات وملاحظات المعالجة الحسية فيما يتعلق بالفم:

تقريبا دائما = 90% او أكثر	غالبا = 75%	نصف الوقت =50%	أحيانا = 25%	تقريبا ابدا = 10% او اقل

السلوكيات المرتبطة بالمعالجة الحسية

	الفقرة		تقريبا دائما	غالبا	نصف الوقت	أحيانا	تقريبا ابدا	لا ينطبق
	طفلي ...							
	53	يبدو عرضة للحوادث						
	54	يتسرع فى انجاز التلوين، الكتابة أو الرسم						
	55	يفرط بأخذ المخاطر (مثلا، يتسلق عالياً على الشجرة، يقفز من على أثاث عال) مما يعرض سلامته للخطر						
	56	يبدو أكثر نشاطاً من الأطفال فى نفس عمره						
	57	يسلك سُبلاً غير فعالة أو أصعب من المطلوب فى عمل المهام (مثلا، يضيع الوقت، يتحرك ببطء)						
	58	من الممكن أن يكون عنيداً وغير متعاون						
	59	لديه نوبات غضب						
	60	يبدو أنه يستمتع بالسقوط						
	61	يتجنب التواصل البصرى معى أو مع الاخرين						

تعليقات وملاحظات السلوكيات المرتبطة بالمعالجة الحسية:

الاستجابة العاطفية الاجتماعية المرتبطة بالمعالجة الحسية

	الفقرة		تقريبا دائما	غالبا	نصف الوقت	أحيانا	تقريبا ابدا	لا ينطبق
	طفلي ...							
	62	يبدو أن تقديره لذاته متدن (مثلا، صعوبة فى حب ذاته)						
	63	يحتاج الى الدعم الإيجابى لكى يعود للمواقف التى تحتوى على تحديات						
	64	حساس تجاه النقد						
	65	لديه مخاوف محددة يمكن التنبؤ بها						
	66	يعبر عن الشعور بالفشل						
	67	جدى للغاية						
	68	لديه نوبات انفعالية عاطفية شديدة عندما لا يستطيع إكمال مهامه						
	69	لديه صعوبة فى تفسير لغة الجسد أو تعابير الوجه						
	70	يصاب بالإحباط بسهولة						
	71	لديه مخاوف تتعارض مع الروتين اليومى						
	72	يتوتر بسبب التغييرات فى الخطط، الروتين، أو التوقعات						
	73	يحتاج حماية أكثر فى حياته مقارنة بالأطفال من نفس عمره (مثلا، لا يدافع عن نفسه جسديا أو عاطفيا)						
	74	يتفاعل أو يشارك فى مجموعات بشكل اقل من الأطفال فى نفس عمره						

	75	لديه صعوبة مع الصداقات (مثلا، تكوين الصداقات أو المحافظة عليها)						

تعليقات وملاحظات الاستجابة العاطفة الاجتماعية:

تقريبا دائما = 90% او أكثر	غالبا = 75%	نصف الوقت =50%	أحيانا = 25%	تقريبا ابدا = 10% او اقل

الاستجابة المتعلقة بالانتباه المرتبط بالمعالجة الحسية

	الفقرة		تقريبا دائما	غالبا	نصف الوقت	أحيانا	تقريبا ابدا	لا ينطبق
	طفلي ...							
	76	يفقد التواصل البصري معي في الأنشطة اليومية						
	77	يواجه صعوبة في الانتباه						
	78	ينظر بعيدا عن المهام ليلاحظ كل ما يجري في الغرفة						
	79	يبدو غير مدرك في بيئة مليئة بالأنشطة (مثلا، غير مدرك للأنشطة)						
	80	يحدق النظر بشدة في الأشياء						
	81	يحدق النظر بشدة في الناس						
	82	يراقب الجميع عندما يتحركون في الغرفة						
	83	ينتقل من نشاط الى اخر بحيث يؤثر سلبا على الأنشطة						
	84	يضيع بسهولة						
	85	يواجه صعوبة في العثور على الأغراض في خلفية من الاشياء المبعثرة (مثلا، حذاء في غرفة غير مرتبة، قلم رصاص في درج غير مرتب)						

مجموع الدرجات:

	86	يبدو غير مدرك عندما يدخل أشخاص الى الغرفة						

هذا البند ليس جزءاً من مجموع درجات الاستجابة الانتباهية
تعليقات وملاحظات الاستجابة الانتباهية:

للاستخدام المكتبي فقط

مفتاح النتيجة	
تقريبا دائما = 90% او أكثر	5
%غالبا = 75	4
%نصف الوقت =50	3
%أحيانا = 25	2
تقريبا أبدا = 10% او اقل	1

مفتاح الرمز	
بحث/نقش- بحث/نقش	
يتجنب- تجنب	
حساسية	
تسجيل	

ملخص الرسالة

تبحث الدراسة في أنماط المعالجة الحسية إلى جانب مستوى المشاركة في النشاط بين أطفال ما قبل المدرسة الفلسطينيين الذين هم في طور النمو الطبيعي. يوجد في العينة 89 طفلاً، 51.6% منهم إناث و41.6% ذكور، تتراوح أعمارهم بين 3 إلى 6 سنوات. الأغلبية، الذين يأتون من محافظات مختلفة، بما في ذلك بيت لحم (56.2%) وجنين ورام الله ونابلس وطوباس وطولكرم والقدس والخليل، يعيشون في المدن (61.8%)، في المناطق الريفية (15.7%)، وفي مخيمات اللاجئين (21.3%).

تبحث الدراسة في العلاقة بين أنماط المعالجة الحسية والمشاركة في النشاط في مرحلة ما قبل المدرسة باستخدام نسخ معتمدة باللغة العربية من استبيان ملف تعريف الحسية للطفل 2– مقدم الرعاية وتصنيف بطاقات النشاط في مرحلة ما قبل المدرسة. باستثناءات قليلة، يتم تصنيف غالبية الأطفال على أنهم "مثلهم كمثل الآخرين" في جميع المجالات الحسية (الحركة، واللمس، والسمع، والبصر، والفم). ومن الجدير بالذكر أن الأطفال في سن السادسة يشاركون في أنشطة تتطلب مجهودًا بدنيًا بمعدلات أعلى.

إن المتغيرات الديموغرافية الرئيسية، مثل مكان المعيشة، لها تأثير كبير على المعالجة الحسية وتختلف حسب البيئة (قرية، مدينة، مخيم للاجئين). كما أن الظروف المالية لها تأثير على ممارسات الرعاية الذاتية، مما يؤكد على دور العوامل الاجتماعية والاقتصادية في نمو الطفل. ومن أجل تعظيم برامج العلاج المهني المبكر وتعزيز الفرص التعليمية العادلة، تؤكد الدراسة

على ضرورة التدخلات المركزة والنهج التعليمية الشاملة التي تستوعب أنماط المعالجة الحسية المتنوعة للأطفال الفلسطينيين في سن ما قبل المدرسة.

الكلمات المفتاحية: المعالجة الحسية، المشاركة في النشاط، أطفال ما قبل المدرسة.